Maryland
STATE MEDICAL JOURNAL

Medical and Chirurgical Faculty of the State of Maryland

VOLUME 7 *May, 1958* NUMBER 5

ARTICLE OF INTEREST

THE PROBLEMS PRESENTED BY FOREIGN GRADUATES

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Article IV†

The foreign graduate and his quest for licensure has presented the most persistent, and probably the most difficult problem, which has confronted the Board of Medical Examiners of Maryland during the past twenty years. From 1935 to the end of World War II most of the foreign graduates in this country were refugees from a totalitarian regime. After the war refugees continued to come from the satellites of Soviet Russia and from Communist China. However, the majority of foreign graduates who are in the United States at present are here on exchange student visas; they come from all over the world. According to a study by Diehl, Crosby and Kaetzel[1], there were a total of 5,589 alien physicians who held appointments as Interns, Residents or Fellows on house staffs of American hospitals in July 1953. We may be certain that this number has substantially increased by now.

The foreign graduate who sought licensure was evaluated, until quite recently, on the basis of the medical school from which he graduated. In 1950 the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges published a list of foreign medical schools which were considered on a par with medical schools in this country. This list was revised in 1951 and again in 1953. Many State Boards accepted no foreign graduates for examination unless they came from one of the schools on this list. The policy of the Maryland Board was to accept such graduates, after one year of internship in this country, and with satisfactory letters of recommendation. Those who had graduated before 1940 from foreign medical schools formerly approved were also accepted, after a year's satisfactory hospital service. Those who graduated after 1940 from schools not on the approved list were not accepted. In spite of this method of selection, Table I shows that nearly 40 per cent of the candidates failed.

The idea of evaluating the foreign graduate on an individual basis has gained favor rapidly during the past three or four years. If the applicant for licensure graduated from a recognized medical school and had at least three years hospital training in this country (at least one year of this period in a rotat-

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† This is the last of four articles. The first three were published in the January, February and April issues of the Maryland State Medical Journal.

TABLE I

Number of Foreign Graduates Who Have Taken Maryland State Board Examinations in the Past 10 Years

Year	Examined	Passed	Failed	Percentage Failed
1948	13	9	4	
1949	17	8	9	
1950	18	12	6	
1951	26	13	13	
1952	35	26	9	
5 Year total....	109	68	41	37.6%
1953	39	26	13	
1954	54	42	12	
1955	80	52	28	
1956	98	61	37	
1957	177	106	71	
5 Year total....	448	287	161	36%

ing internship or medical residency), with satisfactory letters of recommendation, he was usually accepted for examination. Those who had taken and completed one of the review courses in post-graduate medicine‡ as part of this training, were considered favorably. Under this policy increasing numbers of foreign graduates were accepted for examination by the Maryland Board. Many of these applicants had taken their entire training outside of this State. For example, they may have had three years training in Delaware, New Jersey, New York, or the District of Columbia. Further inquiry at times revealed that the State wherein their training had been received would not admit them to examination. In 1957, the Board passed a ruling that all foreign graduate applicants must have at least three years American hospital training, one year of which must be spent in a Maryland hospital. This has definitely reduced the number of applicants for licensure, but it is increasing the number of foreign graduates applying for hospital appointments in Maryland.

Table I shows the number of foreign graduates who have taken the examination in Maryland in the past ten years. It should be noted that the number of foreign graduates examined has increased steadily and has reached a very high level during the past three years. As many foreign graduates were licensed in 1957 as had taken the examination in the five years from 1948 to 1952; the percentage of failures is still high. According to statistics from the Journal of the American Medical Association,[2] Maryland ranked sixth among the States in 1956 in the number of foreign graduates licensed.

Table II shows how foreign graduates from various countries and parts of the world fared on the Maryland State Board examinations during the past five years. Graduates of Chinese medical schools have appeared in substantial numbers during the past three years. Most of them are, for practical purposes, marooned in this country, since they have been driven from the Chinese mainland by the Communists and do not consider Formosa their home. They are hard-working, earnest physicians who have done very well in the examinations. It is gratifying that graduates of English speaking countries, e.g. England and Ireland (Canada is included with American schools) made such a good showing, with only a five per cent failure rate.

Europeans made up the majority of foreign graduates. Most of them came from Germany, Italy, Switzerland, Turkey, Austria, Holland, France, Greece, Poland, Hungary and Latvia. These were older than candidates from most of the other countries and frequently they had language difficulty. The rate of failure in this group was high. On the other hand, candidates from the Middle East and Far East (principally from Iran, Iraq, Lebanon and India) did very well on the examinations with a failure rate of 25 per cent.

Graduates from Central and South America (in-

TABLE II

Record of Candidates from Various Countries and Parts of the World in Maryland State Board Examinations—Past 5 Years

Country or Part of World	Number Examined	Passed	Failed	Percentage Failed
China	61	41	20	33
Cuba	16	10	6	37.5
English speaking countries	40	38	2	5
European	255	150	105	41
Middle East and Far East	28	21	7	25
Philippine Islands	16	8	8	50
South and Central America	33	21	12	36

‡ Such courses are given by the University of Pennsylvania Post-Graduate School, at New York University, Bellevue, and many other places.

cluding Mexico) made only a fair showing. Finally, it was interesting to note that only sixteen graduates of Philippine Medical Schools were examined in the five years. This in spite of the fact that McCormack and Feraru,[3] in a study of alien interns and residents in the United States (1955–1956), showed that there were twice as many graduates from the Philippine Islands in this Country (1,065), as there were graduates from any other country (Canada excepted). The inference is clear that physicians who come to this country from the Philippines do not remain here in appreciable numbers.

Several years ago, a move was started by the Federation of State Medical Boards of the United States to evaluate foreign medical graduates on a National level. Members of the Federation were joined by the Council on Medical Education and Hospitals of the American Medical Association, the Association of American Medical Colleges and the American Hospital Association. After an exhaustive study of the problem, a plan was evolved whereby foreign graduates may be examined to determine—(a) That their educational credentials are satisfactory; (b) that their command of English is satisfactory; (c) that their general knowledge of medicine is adequate. To make these screening tests, the Educational Council for Foreign Medical Graduates (ECFMG) has been established. Dr. Dean F. Smiley, former Secretary of the Association of American Medical Colleges has been chosen as Director of the ECFMG.

Foreign graduates who are candidates for positions on the house staff of a United States hospital, should take the American Medical Qualification Examination which will be given by the ECFMG. The Educational Council lists the following minimum requirements:—

"1. That the foreign medical graduate has completed at least 18 years of formal education including at least 4 years in a bona fide medical college.

2. That the candidate's command of written and spoken English is such as to enable him to take a good medical history from a patient who speaks only English and to make a suitable written record of that history.

3. That the candidate's knowledge of medicine and his ability to reason, using his medical knowledge, are sufficient to permit him to serve as an intern in a hospital in the United States, with credit to himself and safety to his patients."

Examinations will be given in foreign medical schools under supervision of the Educational Council. Those who pass the screening will be billed for $50 after they receive a position in an American Hospital or are otherwise earning American dollars. American hospitals receiving screened candidates will be charged $75 for each such candidate accepted. Foreign graduates, already in this country, will be billed for $50 to cover the cost of the screening. The first examination was given in the United States March 25, 1958. The next examination will be given September 23, 1958—both in this country and in medical centers in foreign countries. The questions used in the written examination will be selected from those developed by the National Board of Medical Examiners. They are, in the main, multiple choice questions.

The perplexing problems posed by the many foreign graduates in this country now appear to be on the threshold of a satisfactory solution. Hospitals in the United States will soon require foreign graduates who apply for internships and residencies to first pass the American Medical Qualification Examinations given by the ECFMG. In this way, they will obtain house officers with adequate training and a satisfactory command of English. Within a short time, a number of State Boards will require foreign graduates to pass the American Medical Qualification Examinations before they are considered for admission to examination for licensure. In all probability the Maryland Board will adopt this policy in the near future. When this is done, the problem of evaluating foreign medical graduates will be greatly simplified and the work of the State Board office will be greatly reduced.

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BIBLIOGRAPHY

1. Diehl, Harold S.; Crosby, Edwin L.; and Kaetzel, Paul K. Alien Physicians Training in Hospitals in the United States. J. A. M. A. Vol. **156,** #1. P. 1–2. Sept. 4, 1954.
2. Medical Licensure Statistics for 1956. J.A.M.A. Vol. **164,** #4. P. 419 (Table 30). May 25, 1957.
3. McCormack, James E. and Feraru, Arthur. Alien Interns and Residents in the United States, 1955–56. J.A.M.A. Vol. **161,** #4. P. 322–324. May 26, 1956.

Scientific Papers

AN AVOCATIONAL DERMATITIS

MORRIS M. COHEN, M.D.

Rattner,[1] in his amusing and subtle manner, so well described his experience in a case of an avocational dermatitis entitled "A Strange Case of Palatitis," that I thought it would be worth while to report one along similar lines.

In 1953 an eighteen year old senior high school student consulted me for a tinea cruris infection with an overlying contact dermatitis resulting from the application of tincture of merthiolate. Whenever he received an abrasion or superficial laceration of the skin, the application of merthiolate or mercurochrome would cause the formation of blisters at the site where these mercurial compounds were applied. The patient had known this for some time.

This young man was not seen again until he was twenty-one years old. He had been happily married for eight months. He now consulted me for an eruption of the penis, of approximately one week's duration, about which he was greatly concerned. Examination revealed erythema, vesiculation and crusting of the dorsal and ventral surface of the shaft of the penis and glans. Clinically, the eruption appeared to be of contact origin. However, the patient denied the application of any mercurial or other agents to the involved area. His dermatitis cleared after one week of therapy with cool saline soaks and hydrocortisone cream. He had also been instructed to refrain from sexual contact.

Further questioning revealed that he had always used a condom in his marital relations without any difficulty, but recently his wife had been fitted with a diaphragm by her gynecologist. She had also been given a contraceptive cream to use with the diaphragm.

Having known of this patient's sensitivity to mercurials in the past, the question of a mercury compound being present in his wife's contraceptive cream was investigated. It was found that the cream prescribed for her contained 0.02 per cent phenyl mercuric acetate and several other ingredients. The patient was then patch tested to his wife's cream. Within twenty-four hours he was forced to remove the patch test because of severe burning over its site. Examination of the test site revealed moderate to severe erythema and vesiculation and two weeks were required for complete healing. The wife's gynecologist was notified regarding the husband's sensitivity to her cream and it was recommended that he prescribe a contraceptive preparation containing no mercurials. After his wife changed to a nonmercurial contraceptive cream, this young man had no recurrence of his dermatitis.

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[1] Rattner, H.: A Strange Case of Palatitis, Arch. Dermat. and Syph. 60: 624 (Oct.) 1949.

A METHOD FOR THE RAPID DETERMINATION OF CALCIUM AND MAGNESIUM

ROBERT C. BAIR, M.D., JOSEPH M. MILLER, M.D. AND GEORGE W. SMITH, M.D.*

An interest in the concentrations of electrolytes in the cerebrospinal fluid in neurologic disease aroused the desire to find a relatively simple method for the determination of calcium and magnesium in the cerebrospinal fluid. The ability of a solution of versene, the di sodium di hydrogen salt of ethylene diamine tetra acetic acid di hydrate, analytical grade, to chelate heavy metals is the basis of the test. The method was derived from examinations used to determine the concentrations of calcium and magnesium in water, originated by Biedermann and Schwarzenbach[1] and developed by McCrumb.[2] Walker and Robinson[3] modified the original method so that magnesium could be determined separately. Calcium and magnesium are chelated by versene at a pH of 7.5 or over, with calcium being preferentially complexed first. The unknown solution is titrated with a standard solution of versene, using Eriochromeschwartz T, an azo dye, as the indicator. In the presence of magnesium, a wine red color is seen. When chelation of the magnesium occurs, the color changes sharply to blue. The amount of standardized versene solution necessary to chelate calcium and magnesium is determined. The amount for magnesium is determined separately after the precipitation of calcium as an oxalate. The difference between the two amounts is the versene solution used for calcium.

Materials

1. Versene solution. Solid sodium hydroxide, 0.05 gram, is dissolved in 100 ml. of triply-distilled, calcium-free water. In this is dissolved 0.4 gram of di sodium di hydrogen versenate di hydrate of analytical grade.† Hydrated magnesium sulfate ($MgSO_4 \cdot 7H_2O$), 0.1 gram, is added to the solution which is then diluted to 1 liter with triply-distilled, calcium-free water. The solution is very stable.

2. Standardized calcium carbonate solution. Anhydrous calcium carbonate ($CaCO_3$), 1.0 gram, is dissolved in 4 ml. of a dilute solution of hydrochloric acid. The solution is neutralized with a dilute solution of ammonium hydroxide until just alkaline to litmus. Dilution to 1 liter with triply-distilled, calcium-free water is done so that each ml. of solution contains 0.001 gram of calcium carbonate.

3. Standardized magnesium sulfate solution. Hydrated magnesium sulfate ($MgSO_4 \cdot 7H_2O$), 1.0 gram, is dissolved in 1,000 ml. of triply-distilled, calcium-free water.

4. Buffer solution. One part of a 1.0 molar solution of ammonium chloride and five parts of a 1.0 molar solution of ammonium hydroxide are mixed to make 1 liter of solution. The solution should have a pH of about just over 10.

5. Ammonium oxalate solution, four per cent.

6. Eriochromeschwartz T,‡ the indicator.

The solution of versene is standardized against ten ml. of the known solution of calcium carbonate using two drops of Eriochromeschwartz T as the indicator. When the calcium is completely chelated, the very small amount of magnesium in the versene solution will be chelated almost immediately and the indicator will change from wine red to blue. The amount of calcium chelated by each ml. of versene solution is calculated by the following formula.

* From the Surgical Service, Veterans Administration Hospital, Fort Howard, Maryland (Dr. Bair and Dr. Miller) and the Neurosurgical Service, The Johns Hopkins Hospital, Baltimore, Maryland (Dr. Smith).

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Materials

1. Versene solution. Solid sodium hydroxide, 0.05 gram, is dissolved in 100 ml. of triply-distilled, calcium-free water. In this is dissolved 0.4 gram of di sodium di hydrogen versenate di hydrate of analytical grade.† Hydrated magnesium sulfate ($MgSO_4 \cdot 7H_2O$), 0.1 gram, is added to the solution which is then diluted to 1 liter with triply-distilled, calcium-free water. The solution is very stable.

2. Standardized calcium carbonate solution. Anhydrous calcium carbonate ($CaCO_3$), 1.0 gram, is dissolved in 4 ml. of a dilute solution of hydrochloric acid. The solution is neutralized with a dilute solution of ammonium hydroxide until just alkaline to litmus. Dilution to 1 liter with triply-distilled, calcium-free water is done so that each ml. of solution contains 0.001 gram of calcium carbonate.

3. Standardized magnesium sulfate solution. Hydrated magnesium sulfate ($MgSO_4 \cdot 7H_2O$), 1.0 gram, is dissolved in 1,000 ml. of triply-distilled, calcium-free water.

4. Buffer solution. One part of a 1.0 molar solution of ammonium chloride and five parts of a 1.0 molar solution of ammonium hydroxide are mixed to make 1 liter of solution. The solution should have a pH of about just over 10.

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* From the Surgical Service, Veterans Administration Hospital, Fort Howard, Maryland (Dr. Bair and Dr. Miller) and the Neurosurgical Service, The Johns Hopkins Hospital, Baltimore, Maryland (Dr. Smith).

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‡ The Eriochromeschwartz T was supplied by the Bersworth Chemical Company, Framingham, Massachusetts.

(1) mg. calcium per ml. versene =

$$\frac{10 \times 40 \text{ (atomic weight of calcium)}}{\text{ml. versene solution used} \times 100 \text{ (molecular weight of } CaCO_3)}$$

The solution of versene is standardized against 10 ml. of the known solution of magnesium sulfate using two drops of Eriochromeschwartz T as the indicator. When the magnesium is completely chelated, the indicator will change from wine red to blue. The amount of magnesium chelated by each ml. of versene solution is calculated by the following formula.

(2) mg. magnesium per ml. versene =

$$\frac{10 \times 24 \text{ (atomic weight of magnesium)}}{\text{ml. versene solution used} \times 246 \text{ (molecular weight of } MgSO_4 \cdot 7H_2O)}$$

Method

To determine the amount of calcium and magnesium in cerebrospinal fluid—

1—The number of ml. of standardized versene solution used for calcium and magnesium are determined first.

a. Put 2 ml. of spinal fluid in a clean test tube washed three times with triply-distilled calcium-free water.
b. Add 5 ml. of triply-distilled calcium-free water.
c. Add 5 ml. of buffer solution.
d. Add 2 drops of Eriochromeschwartz T, the indicator.
e. Titrate with standardized solution of versene until the wine red turns blue.

2—Magnesium is determined second.

a. 2 ml. of spinal fluid are placed in a clean test tube washed three times with triply-distilled calcium-free water.
b. Add 2 ml. of triply-distilled calcium-free water.
c. Add 1 ml. of ammonium oxalate solution.
d. Allow to stand for 30 minutes.
e. Centrifuge at 3,500 r.p.m. for 10 minutes.
f. Pour supernatant fluid into a clean test tube washed three times with triply-distilled calcium-free water.
g. Wash precipitate from e with 5 ml. of triply-distilled calcium-free water and centrifuge again. Add supernatant fluid to that in f.
h. Pour fluid into crucible.
i. Add 5 ml. of buffer solution.
j. Add 2 drops of Eriochromeschwartz T, the indicator.
k. Titrate with standardized versene solution until the wine red turns blue.

The meq of magnesium per liter is obtained in the following manner.

(3a) mg. magnesium per 100 ml. = ml. of standardized solution of versene used x factor obtained from standardization of magnesium (2) × 50 (to convert to 100 ml. as 2 ml. of cerebrospinal fluid were used)

(3b) meq. magnesium per liter =

$$\frac{\text{mg. per 100 ml.} \times 10 \text{ (per liter)} \times 2 \text{ (valence of magnesium)}}{24 \text{ (atomic weight of magnesium)}}$$

3—Calcium is determined third.

The amounts of standardized versene solution used in 1 and 2 are used, for the difference between 1 and 2 is the amount used for calcium. The meq. of calcium per liter is determined in the following manner.

(4a) mg. calcium per 100 ml. = ml. of standardized versene solution used x factor obtained from standardization of calcium (1) × 50 (to convert to 100 ml. as 2 ml. of cerebrospinal fluid were used).

(4b) meq. calcium per liter =

$$\frac{\text{mg. calcium per 100 ml.} \times 10 \text{ (per liter)} \times 2 \text{ (valence of calcium)}}{40 \text{ (atomic weight)}}$$

Example

For clarity, the following example is presented. A total of 5.04 ml. of standardized versene solution was used to titrate the calcium and mag

nesium in 2 ml. of an unknown sample of cerebrospinal fluid. After the calcium was precipitated from the sample, 2.30 ml. were required for the magnesium. This left 2.74 ml. for the calcium.

Use formulas 3a and 3b for the magnesium.

mg. magnesium per 100 ml. = ml. standardized versene solution used x factor obtained from standardization of magnesium (2) × 50 (to convert to 100 ml. as 2 ml. of cerebrospinal fluid were used.)

$x = 2.30 \text{ ml.} \times 0.0207 \times 50$

$x = 2.4155$ mg. magnesium per 100 ml.

meq. magnesium per liter =

$$\frac{\text{mg. magnesium per 100 ml.} \times 10 \text{ (per liter)} \times 2 \text{ (valence of magnesium)}}{24 \text{ (atomic weight of magnesium)}}$$

$$x = \frac{2.4155 \times 10 \times 2}{24}$$

$x = 2.01$ meq. of magnesium per liter

Use formula 4a and 4b for the calcium.

mg. calcium per 100 ml. = ml. of standardized versene solution used x factor obtained from standardization of calcium (1) × 50 (to convert to 100 ml. as 2 ml. of cerebrospinal fluid were used)

$x = 2.74 \text{ ml.} \times 0.0381 \times 50$

$x = 5.2197$ mg. of calcium per 100 ml.

meq. calcium per liter =

$$\frac{\text{mg. calcium per 100 ml.} \times 10 \text{ (per liter)} \times 2 \text{ (valence of calcium)}}{40 \text{ (atomic weight of calcium)}}$$

$$x = \frac{5.2197 \times 10 \times 2}{40}$$

$x = 2.61$ meq. of calcium per liter

Check

The method was checked by determination of recovered amounts of calcium and magnesium added to cerebrospinal fluid.

(1) 2.0 ml. of unknown sample of cerebrospinal fluid—

Magnesium	2.24 meq. per liter
Calcium	3.38 meq. per liter

(2) 1.0 ml. of standardized calcium carbonate solution—

Calcium	9.9 meq. per liter

(3) 2.0 ml. of cerebrospinal fluid and 1.0 ml. of standardized calcium carbonate solution—

Total calcium	12.20 meq. per liter
Calcium (1)	3.38 meq. per liter
Calcium recovered	9.82 meq. per liter
Calcium added (2)	9.90 meq. per liter
Error	0.08 meq. per liter

(4) 1.0 ml. of standardized magnesium sulfate solution—

Magnesium	4.05 per liter

(5) 2.0 ml. of cerebrospinal fluid and 1.0 ml. of standardized magnesium sulfate solution—

Total magnesium	6.30 meq. per liter
Magnesium (1)	2.24 meq. per liter
Magnesium recovered	4.06 meq. per liter
Magnesium added	4.05 meq. per liter
Error	0.01 meq. per liter

The method can be used for the rapid determination of calcium and magnesium in cerebrospinal fluid, pancreatic fluid, urine, ascitic fluid, and fluid from cysts. A small number of chemicals and a minimal amount of apparatus are necessary and the technique is simple.

SUMMARY

The use of a solution of versene, the di sodium di hydrogen salt of ethylene diamine tetra acetic acid di hydrate, analytical grade, to chelate calcium and magnesium is the basis of the tests for these metals. The determinations can be done with a high degree of accuracy of results. Further investigation of the method is indicated.

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REFERENCES

1. BIEDERMANN, W. AND SCHWARZENBACH, G. Cited in The Versenes, ed. 5, Framingham, Bersworth Chemical Company, 1952, sec. III, p. 5.
2. MCCRUMB, F. R. New versenate test for total water hardness eliminates false end points. Power Generation **53:** 79–102 (December) 1949.
3. WALKER, A. O. AND ROBINSON, R. S. How new water test determines calcium and magnesium hardness separately. Power Generation **54:** 81–82 (January) 1950.

CONCENTRATIONS OF CALCIUM AND MAGNESIUM IN THE CEREBROSPINAL FLUID IN PATIENTS WITH VARIOUS NEUROLOGIC DISEASES AND CONDITIONS

ROBERT C. BAIR, M.D., JOSEPH M. MILLER, M.D. AND GEORGE W. SMITH, M.D.*

Little information about the concentrations of calcium and magnesium in the cerebrospinal fluid in neurologic diseases and conditions is available in the literature. The normal concentration of calcium in the blood serum is about 4.5 to 5.75 milliequivalents per liter and that in the cerebrospinal fluid about 2.0 to 3.5 or about equal to the diffusible part in the blood serum. The normal concentration of magnesium in the blood plasma is about 0.83 to 2.5 milliequivalents per liter and that in the cerebrospinal fluid about 2.5 to 3.

TABLE I

Disease or Condition	Number of Patients	Calcium in Milliequivalents per Liter		Magnesium in Milliequivalents per Liter	
		Lowest	Highest	Lowest	Highest
Alcoholism	2	2.29	2.86	2.24	2.42
Atrophy, cerebral cortex	2	2.00	2.38	2.07	2.50
Cephalgia	2	2.29	2.38	1.90	2.16
Deficiency, mental	2	2.19	2.38	2.16	2.42
Epilepsy	43	0.76	3.34	1.47	2.68
Hydrocephalus, communicating	1	2.00	—	2.33	—
Hydrocephalus, internal	2	2.48	—	2.24	2.33
Pseudotumor, cerebri	1	2.38	—	2.33	—
Psychosis	3	2.10	3.15	0.52	2.24
Psychosis, alcoholic	4	2.38	3.05	1.29	1.81
Syphilis	1	3.24	—	2.24	—
Tremor, hands	2	2.48	2.96	2.16	2.33
Tumor, brain	5	2.19	2.96	1.98	2.24

The discovery of a method for the rapid determination of calcium and magnesium in the cerebrospinal fluid[1] provided the means for the investigation of the ions. The basis of the test is the ability of a solution of versene, the di sodium di hydrogen salt of ethylene diamine tetra acetic acid di hydrate, analytical grade, to chelate these ions.

The concentrations of calcium and magnesium of the cerebrospinal fluid with various neurologic diseases or conditions were determined (Table I). The range of calcium was 0.76 to 3.34 milliequivalents per liter and that of magnesium 0.52 to 2.68. A suggestion of a reciprocal relationship between calcium and magnesium in the cerebrospinal fluid existed.

SUMMARY

The concentrations of calcium and magnesium in the cerebrospinal fluid of 70 patients was determined using a solution of versene. A suggestion of a reciprocal relationship between the values for calcium and magnesium in the cerebrospinal fluid existed.

Veterans Administration Hospital
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REFERENCE

1. BAIR, R. C., MILLER, J. M. AND SMITH, G. W. A method for the rapid determination of calcium and magnesium. Md. State Med. Journal, Vol. 7, No. 5, p. 237.

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A MASS CHEST SURVEY AT A NAVAL STATION IN THE TROPICS WITH NOTES ON HISTOPLASMOSIS*

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The primary objective of an annual chest survey has been tuberculosis case-finding. The 70 mm. film study was introduced with the idea of reaching as large a number of people as possible with the least expense and bother. With this in mind, the chest survey program was instituted by the United States Navy about twelve years ago and the Naval Station Rodman was included shortly after its establishment about five years ago.

A recent editorial[1] in the Journal of the American Medical Association brought up the question of the value of such programs. Progress in medicine has inevitably resulted in the acquisition of new knowledge of chest pathology, improvement in methods for the study of such pathology and changes in the perspective on procedures for the control of chest diseases. We at this naval activity in the tropics would like to present our findings in the 1955 chest survey program and show how these findings seem to reflect the changing trends in chest surveys.

Method of Study

Naval medical care for the Pacific terminal of the Canal Zone is invested in the facilities at the U. S. Naval Station Rodman. The Pacific terminal includes this naval station plus Headquarters, Fifteenth Naval District, U. S. Naval Radio Stations Summit and Farfan and several ships and small craft that are berthed at these locations. A total of 2185 chest X-rays were taken on 70 mm. roll film. These included Naval and Marine officers and enlisted personnel, their dependents and civilian employees of the Navy. Children were not included in the study. The program was obligatory for the military and the civilian employees. Most of the civilian employees were Panamanians, otherwise referred to as "local raters" to differentiate them from "U. S. raters."

The films were taken with a standard 70 mm. photofluorographic unit. Any suspect or unsatisfactory X-rays were repeated on the usual 14 x 17 inch film. A number of cases could not be followed beyond the initial 70 mm. film due to departures from the Canal Zone or separation from employment (Table I).

Incidence of Pathology

Of the 900 military personnel X-rayed, only 10 cases of pathology were found, representing a 1.1 per cent incidence. It is to be understood that the term pathology as used in this presentation refers to any abnormal finding on the roentgenogram.

Since the program was not obligatory for dependents, their response was poor. However, of the 233 chest films reviewed, four cases of pathology were found or a 1.7 per cent incidence.

Civilian employees presenting themselves for survey numbered 1052. Among these, 57 cases of pathology were discovered. This represents a 5.4 per cent incidence. The U. S. raters numbered 19 or 1.8 per cent and the local raters numbered 38 or 3.6 per cent (Table II).

Notice how closely the incidence is approximated among the American citizens and that the incidence among local raters is more than double that found in the Americans (average incidence 1.5%). This may well represent differ-

* Presented at the June, 1956 meeting of the Medical Association of the Isthmian-Canal Zone, Gorgas Hospital, Ancon, Canal Zone. From U. S. Naval Dispensary, Rodman, Canal Zone.

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TABLE I
Summary of 1955 Chest Survey

	Military	Dependents	Civilian Employees	Total
Number of 70 mm. films	900	233	1052	2185
Number of normal 70 mm. films	835	188	905	1928
Number of suspicious or unsatisfactory 70 mm. films	65	45	147	257
Number of normal 14 x 17 inch films	55	41	90	186
Number of cases of pathology confirmed by 14 x 17 inch films	10	4	57	71
Pathology requiring follow-up	8	2	14	24
Cases that could not be studied beyond 70 mm. film	1	5	9	15

TABLE II
Incidence of Pathology

Group	Number of Films	Cases of Pathology	Incidence
Military	900	10	1.1%
Dependents	233	4	1.7%
U. S. raters	1052	19	1.8%
Local raters		38	3.6%

ences in socio-economic conditions in the United States and Panama.

Corresponding figures throughout the United States Navy for 1955 show an incidence of only 0.246 per cent for pathology among military personnel and only 0.498 per cent among civilian personnel. Our figures show about five times as much pathology in the military (1.1 per cent) and about ten times as much among civilian workers (5.4 per cent). We feel that there may be a greater incidence of pathology in one geographical location than another, especially among civilian workers outside the continental limits of the United States. However, the greater part of this difference in incidence is a reflection of our definition of pathology, as noted above.

CLASSIFICATION OF PATHOLOGY

The types of pathology found in this mass chest survey were somewhat surprising (Table III). These diagnoses total 84. The number of cases of pathology in Table I come to 71. It is understood, therefore, that some patients had more than one type of pathology.

A perusal of this table reveals that not one case of active tuberculosis was uncovered. There were several cases of reinfection type tuberculosis, but all of these had been studied and treated in the past and were classified as inactive cases. No doubt many of the cases of pleural thickening and pulmonary fibrosis represented tuberculous infection, but these too, were, of course, inactive. This represents the first time that a chest survey at this activity failed to disclose active tuberculosis. On the average, since the chest program was instituted at this facility, there have been two cases of active pulmonary tuberculosis discovered per year per 2000 films. In a recent review of 348,875 photofluorograms at the Bureau of Medicine and Surgery[2] only 63 cases of active pulmonary tuberculosis were found, representing 0.018 per cent of the total number of X-rays read. These findings seem to be in line with the tendency to a world-wide decrease in incidence of pulmonary acid-fast disease. Our survey of 2185 films is a far cry from the total reviewed by the Bureau, but it certainly seems to reflect their findings. Drolet and Lowell[3] relate this potential decrease to our antimicrobial weapons. The year 1947 marks the beginning of the antimicrobial era for it was in that year that streptomycin became clinically available. This was followed in 1949 by para-aminosalicylic acid and in 1952 by isoniazid. The tuberculosis death rate in the United States dropped from 33 per 100,000 population in 1947 to 14 per 100,000 population in 1954. We have no alternative but to give the credit to better methods of treatment and to fuller understanding of the pathophysiology involved in the disease process.

It will be seen from a review of Table III that we found five cases of histoplasmosis, accounting for 50 per cent of the pathology in military personnel and their dependents Three of these were single tumor masses (histoplasmoma) and the other two the more diffuse pulmonary disease. All five of these were found in native-born

TABLE III
Types of Pathology

Pulmonary		*Cardiac*	
Pleural thickening	14	Cardiomegaly	5
Pulmonary fibrosis	13	Mitral stenosis	1
Emphysema	12	Aortic aneurism	1
Reinfection tuberculosis, inactive	10	Constrictive pericarditis	1
Tuberculoma	2	Pericardial calcification	1
Nonspecific granuloma	2	Hypertensive heart disease	1
Pneumonitis	2	Atherosclerosis, severe	1
Histoplasmoma, active	2	*Miscellaneous*	
inactive	1	Rib fractures	3
Histoplasmosis, diffuse, active	1	Congenital rib anomaly	2
inactive	1	Eventration, right diaphragm	1
Bronchogenic carcinoma	1	Obesity	1
Boeck's sarcoidosis	1	Osteoarthritis	1
Bronchial asthma	1	Pericardial fat pad	1
Diaphragmatic adhesions	1		

Americans, four of whom were active military personnel. There were also two so-called nonspecific granulomas in the Americans, but these were lost to our study shortly after their initial 70 mm. film.

REVIEW OF HISTOPLASMOSIS

The finding of histoplasmosis in Americans only is surprising and is in agreement with the recent work on histoplasmosis at the Gorgas Hospital.[4] In over 100 proven cases of this fungous disease collected in the Canal Zone by Mastellari, Young and Cleve, not one case occurred in an adult Panamanian.

Histoplasmosis has assumed an important role in the differential diagnosis of chest lesions, especially since it can so closely mimic pulmonary tuberculosis and malignancy. At the turn of the century, S. T. Darling isolated Histoplasma capsulatum. Since then, the disease has been recognized as a fungous infection and until recently was considered an exotic tropical entity. However, with all the clinical studies in and around the Mississippi River basin, histoplasmosis is now accepted as a fairly common entity in the United States. This is especially true of the chronic calcified state.

Pulmonary histoplasmosis has been classified[5] on the basis of X-ray findings as nodular, pneumonic and disseminated. We have arbitrarily divided histoplasmosis into the fatal, generalized disease and the non-fatal, pulmonary disease. The pulmonary infection may be a single tumor, the histoplasmoma, or a diffuse pulmonary process. This classification can be further subdivided by the presence or absence of activity (Table IV). The inactive diffuse pulmonary disease is the chronic diffuse calcified or residual state that is so frequently seen on chest X-ray.

TABLE IV
Classification of Histoplasmosis

A. Fatal—generalized
B. Non-fatal—pulmonary
  1. Histoplasmoma
    a—active
    b—inactive
  2. Diffuse pulmonary histoplasmosis
    a—active
    b—inactive

There were no fatal cases in our study, but there were examples of each of the others. These will be discussed below.

It has been shown[6] that histoplasmosis is probably the principal cause of pulmonary calcification and probably the most important cause because such calcification is so prevalent. Infection with the histoplasma bodies must be mild, symptomless and unrecognized. These subclinical infections account for the changes which we see on X-ray.

Presentation of Cases

Case I—Histoplasmoma, Inactive

An area of increased density in the right lung was seen on the 70 mm. film. A 14 x 17 inch film was interpreted as a granuloma of undetermined etiology (Figure 1). The initial X-ray taken at the time of the patient's induction in 1951 was not available, but was listed in the Health Record as having been normal. The patient was a twenty-year old white Naval enlisted man who gave a history of having lived on a farm for about fourteen years. He had not been reared in a particularly dusty atmosphere, but did admit to contact with chickens and chicken coops. He had never been seriously ill. He had been in the Canal Zone for a year and a half. His only childhood disease had been measles. There was no history of contact with tuberculosis in the States. However, the patient was rates a fireman and the local rate cook at the firehouse where he was quartered had recently died. Active pulmonary tuberculosis was found at autopsy on this man. With this in mind, the patient was studied for tuberculosis. This study revealed normal findings. The tuberculin skin tests were negative, but the histoplasmin skin test gave a positive result in forty-eight hours. The patient was followed every three months for one year and no change was seen on the X-ray.

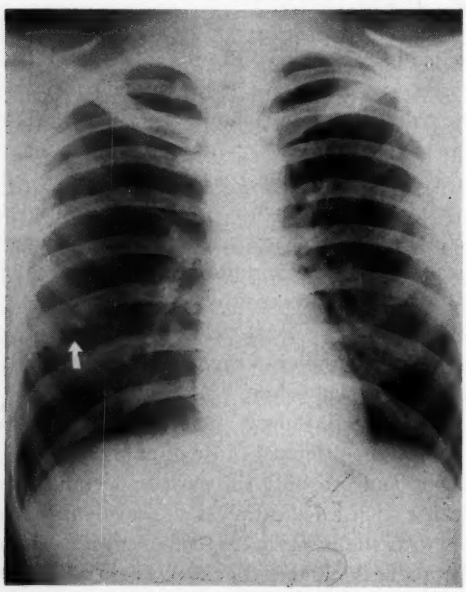

Fig. 1. Case I. Granulomatous nodule present in the right lung.

Comment: The possibility of the granuloma being an acid-fast infection was a very strong one in view of the fact that the infected cook had been preparing the patient's food for about a year and a half. Somehow, the cook had avoided having any X-rays taken at our facility. The granuloma was well circumscribed, partially calcified and stable. With a negative tuberculin skin test and a positive histoplasmin skin test, this was felt to be an inactive histoplasmoma. This is the type of case frequently referred to as a "non-specific granuloma."

Case II—Histoplasmoma, Active

The patient was a twenty-two year old white Naval enlisted man who had a left lung nodule on the 70 mm. film. The 14 x 17 plate showed a 3 cm. area of increased density at the level of the left third rib anteriorly (Fig. 2). A 14 x 17 film taken at this activity in December, 1954 was available for comparison (Fig. 3). This film had been read as negative. However, in reviewing it at this time, it was felt that there might be some suspicious infiltration in the presently suspect area. The original induction X-ray from 1950 was listed in the Health Record as being negative. He had been in the Canal Zone about twenty months at the time of the study.

The patient was completely asymptomatic. He had lived in New Jersey all of his life and had never spent any time on a farm. There was a long history of asthma with atopic eczema until the age of fourteen years. No history of tuberculosis contact or exposure to a dusty atmosphere was available.

A complete workup was within normal limits. The tuberculin skin test (second strength PPD) was four plus after forty-eight hours. The histoplasmin skin test was markedly positive.

The histoplasmin complement fixation titre

was positive in a dilution of 1:32, while the collodion agglutination test was negative.

He was transferred to the U. S. Naval Hospital, St. Albans, New York. The tuberculosis workup was repeated and still found to be negative. Bronchoscopy revealed a normal bronchopulmonary tree. A subsegmental resection of the superior segment of the left lower lobe was performed. A moderately well-circumscribed, yellow-gray mass was found. Histologic studies for tubercle bacilli and for fungi were negative. The man was returned to duty in the States. The surgical specimen was forwarded to the Armed Forces Institute of Pathology where Histoplasma capsulatum was isolated. A section of the specimen was also studied at the Gorgas Hospital and this finding was substantiated.

Comment: The problem in this case was to differentiate an active tuberculoma from an active histoplasmoma. With the skin tests for both conditions being strongly positive and the lesion so well-circumscribed, it was felt that excisional surgery was the only answer for diagnosis and cure.

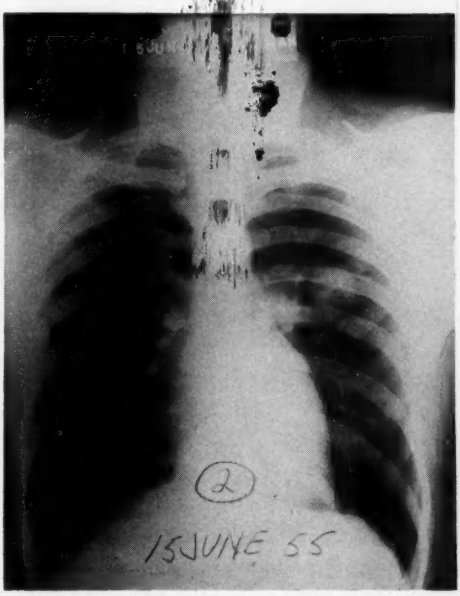

FIG. 2. Case II. 3 cm. area of increased density at the level of the left third rib anteriorly.

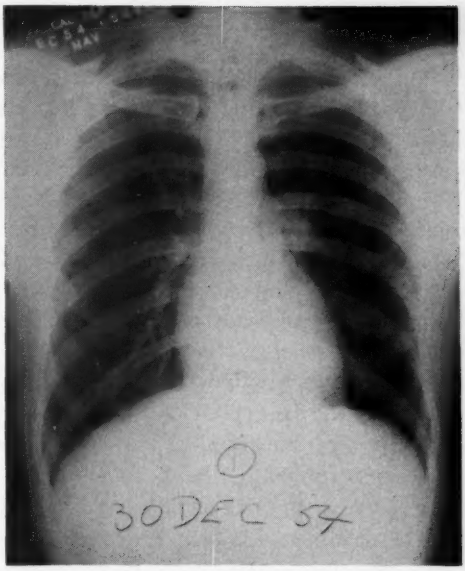

FIG. 3. Case II. Film taken 30 December 1954 and interpreted as negative. However, there may be some early infiltration in the suspect area in the upper left lung.

Case III—Histoplasmoma, Active

A suspicious nodule was seen in the right lung on the 70 mm. film. The 14 x 17 film showed a 3 cm. nodule of increased density at the level of the right second rib anteriorly in the midclavicular line (Fig. 4). The patient was a thirty-seven year old white Naval officer who had always enjoyed comparatively good health. He had lived most of his life on a farm prior to entrance in the Navy in 1938. There were no presenting complaints. There was no history of tuberculosis contacts. The 1954 chest survey film was listed in his Health Record as negative. The 1953 chest X-ray for the annual physical examination was available and found to be negative (Fig. 5).

Sputum and gastric washings were negative on repeated study. Three sedimentation rates (Cutler method) were interpreted as 22 mm., 20 mm. and 20 mm. These are somewhat ele-

vated for our laboratory. The white blood count on three occasions was 11400, 12000 and 12900. The tuberculin skin test (first strength PPD) was 2+ in forty-eight hours, and the histoplasmin skin test was markedly positive. Blood titres for histoplasmosis were not obtained on this man.

The patient was transferred to the U. S. Naval Hospital, St. Albans, New York, where the usual tuberculosis workup including bronchoscopy was negative. Surgery was performed and a discrete solid granulomatous mass was enucleated from the anterior segment of the right upper lobe. A frozen section was reported as an "inflammatory granuloma." The fixed specimen was studied and no acid-fast organisms or fungi were found. The specimen was studied by the Armed Forces Institute of Pathology with similar negative findings. The specimen was next reviewed by the Gorgas Hospital Pathology Department and histoplasma bodies were found.

The man has since been returned to full duty in the Canal Zone. A recent chest X-ray reveals

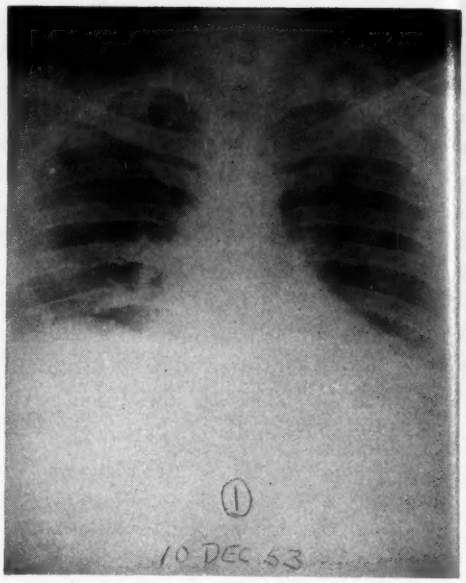

FIG. 5. Case III. 1953 chest X-ray for annual physical examination which was read as being essentially negative.

FIG. 4. Case III. 3 cm. nodule at the level of the right second rib anteriorly.

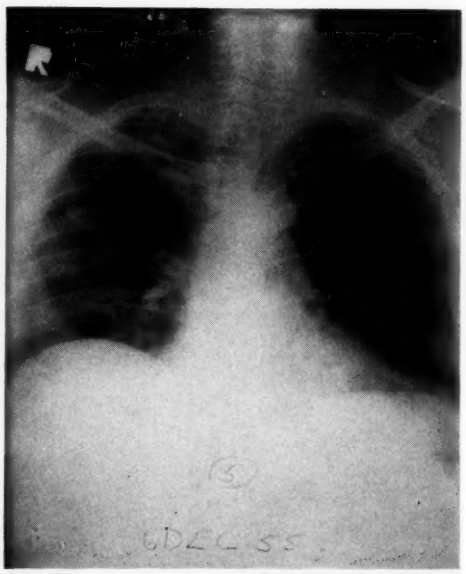

FIG. 6. Case III. Small triangular area of pulmonary fibrosis in the periphery of the upper right lung field several months after enucleation of the granulomatous nodule.

only a small area of fibrosis in the periphery of the upper right lung field (Fig. 6).

Comment: The differentiation of a lung tumor, a tuberculoma and a histoplasmoma can prove to be quite a problem which, at times, can be solved only by surgery, as it was in this case. Even after surgery, histological study may not always reveal the true etiology of the granuloma. In cases II and III, the surgical specimens were studied by several competent pathologists before Histoplasma capsulatum was seen. The fungous bodies act as a central nidus around which a granuloma is incited to grow. On sectioning such a granuloma, the fungous nidus may be missed entirely and thus is not seen on microscopy.

Case IV—Histoplasmosis, Diffuse, Inactive

Suspicious calcifications were seen on the 70 mm. film. On the 14 x 17 film there were visible numerous, disseminated, small calcifications throughout both lung fields with the greatest concentration in both hilar areas. In addition, there was seen a 1 cm. apparently soft nodule in the periphery of the left first interspace anteriorly (Fig. 7). Due to lack of cooperation by this thirty-six year old white female dependent, a complete history and workup could not be obtained. However, it was known that the calcifications had been first reported in 1943. It was learned from her husband that she had never had any serious illness. She agreed to skin testing for tuberculosis and histoplasmosis, but she refused to return for the interpretation of these tests. The patient became pregnant shortly after the X-ray changes were discovered and she left the Canal Zone.

Comment: It is felt that the X-ray findings are typical enough to label this as an example of diffuse pulmonary histoplasmosis, inactive. This is the sort of X-ray that originally started all the histoplasmosis research in the Mississippi River Basin. The original papers[6, 7] on this fungous disease describe almost a pathognomonic X-ray picture with discrete, multiple, button-like calcified foci in each hilum with many bilateral peripheral plaques of calcium deposits. In tuberculosis, there is a single peripheral focus and usually one lymphatic chain back to the hilum. To have such wide-spread pulmonary calcification result from tuberculosis, the patient would probably have had to have miliary disease or, perhaps, give a history of a prolonged febrile illness. It is rather unlikely that the patient, uncooperative as she was, would have kept such an illness from her husband or from interested physicians.

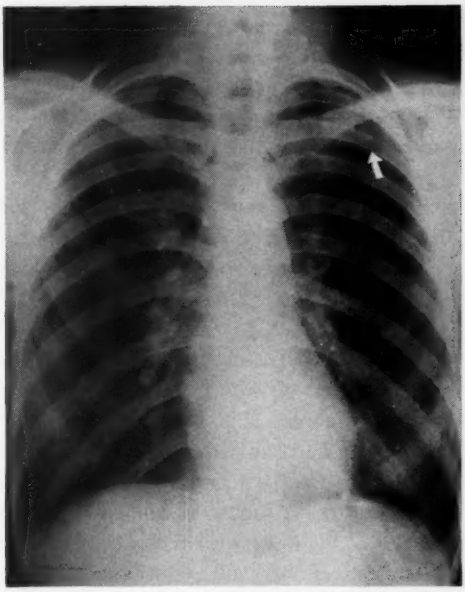

FIG. 7. Case IV. A typical X-ray of diffuse inactive pulmonary histoplasmosis with numerous calcifications throughout both lung fields. Notice the greatest concentration in both hilar areas. An apparently soft nodule is seen in the left first interspace anteriorly.

Case V—Histoplasmosis, Diffuse, Active

The 70 mm. film of this forty-five year old, white, Naval officer disclosed suspicious markings at the right lower chest. Shortly thereafter, he began to complain of generalized aches and pains, headache and fever. His temperature was 100 degrees. There were no respiratory symptoms. He had been in the Canal Zone only two

months. Physical examination was completely negative. A white blood count at this time was 6900 with a normal hemogram. A standard 14 x 17 chest X-ray showed increased bronchovascular markings radiating from the hilum to the right lower lobe (Fig. 8).

A review of the past history disclosed that the patient had had a very similar episode in December, 1954, while stationed in South Carolina. At that time, according to his Health Record, the chest X-ray had shown increased bronchovascular markings on the right with several patches of infiltration suggestive of atypical pneumonia. This film was not available and there had been no further follow-up.

The patient was born in Iowa and had lived on a farm until 1927 when he joined the Navy. Almost all of his duty with the Navy had been in the tropics. He had suffered a bout of dengue fever in 1939 while in the Philippine Islands.

It was felt that the present pathology could represent a pneumonic process, so he was treated with a broad-spectrum antibiotic. There was clinical improvement. However, a repeat chest X-ray in one week disclosed an increase in the density at the inferior pole of the right hilum (Fig. 9). This lesion progressed (Fig. 10—two weeks later).

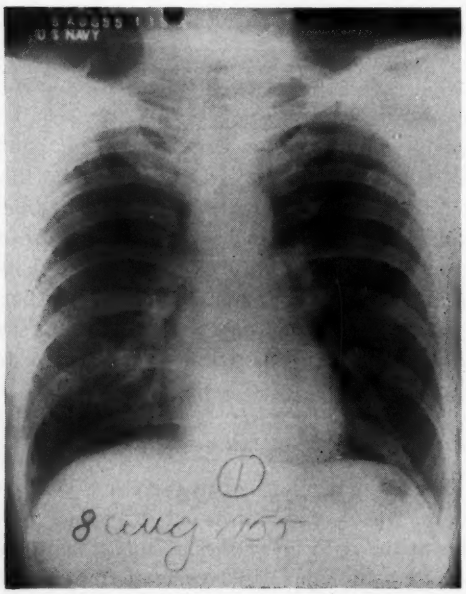

FIG. 8. Case V. 8 August 1955—Increased bronchovascular markings radiating from the right hilum to the right lower lobe.

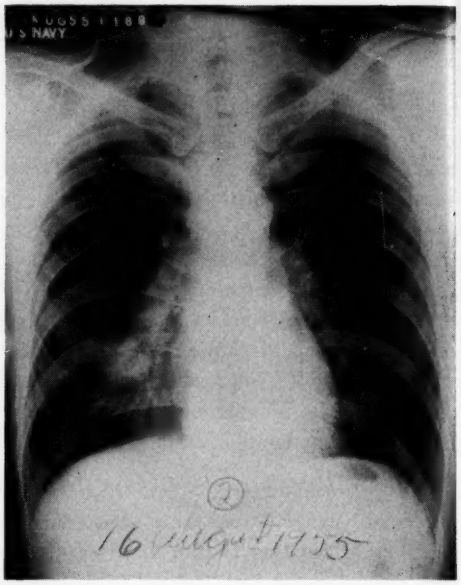

FIG. 9. Case V. 16 August 1955—There has been an increase in the density at the inferior pole of the right hilum.

Due to the age factor and the strong possibility of a malignancy, he was transferred to the U. S. Naval Hospital, St. Albans, New York. The initial X-ray here showed what appeared to be a resolving inflammatory lesion at the lower pole of the right hilum (Fig. 11). A complete workup including bronchoscopy proved to be negative. However, the tuberculin skin test (second strength PPD) gave a 3+ reaction and the histoplasmin skin test was strongly positive.

On bed rest, the pulmonary infiltrate rapidly receded. Fig. 12 shows a normal chest X-ray after three weeks of bed rest. In another week, he had a peripheral lesion in both the upper right and upper left lungs (Fig. 13). He was re-

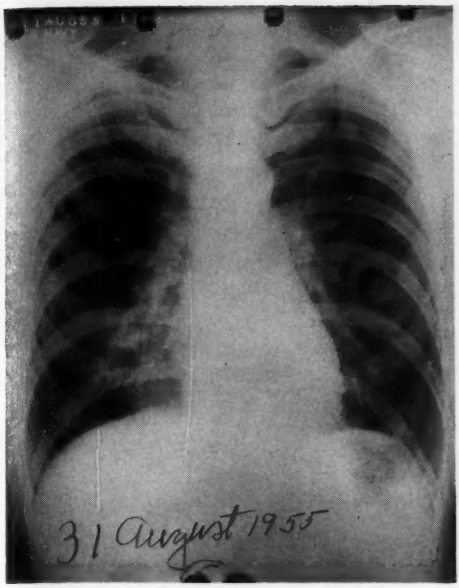

FIG. 10. Case V. 31 August 1955—Further progression of the lesion in the right lower lobe.

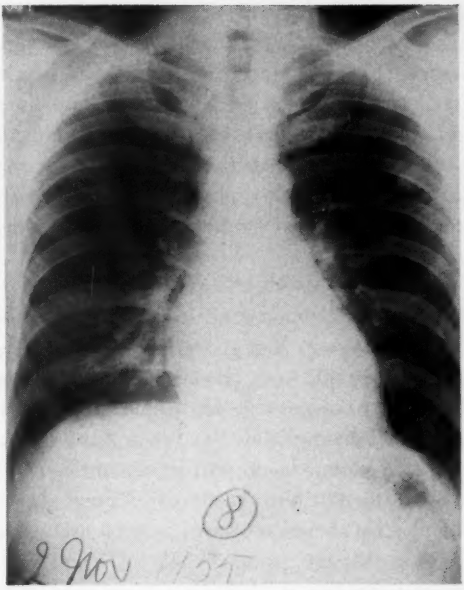

FIG. 12. Case V. 2 November 1955—There has been rapid resolution of the pulmonary lesion. This film was interpreted as being negative.

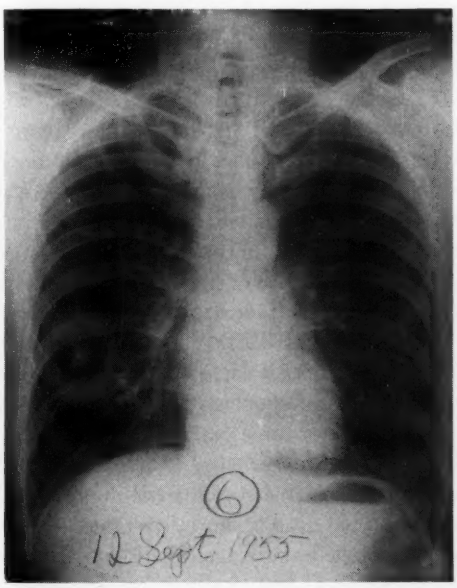

FIG. 11. Case V. 12 September 1955—This X-ray reveals what appears to be a resolving inflammatory lesion at the lower pole of the right hilum.

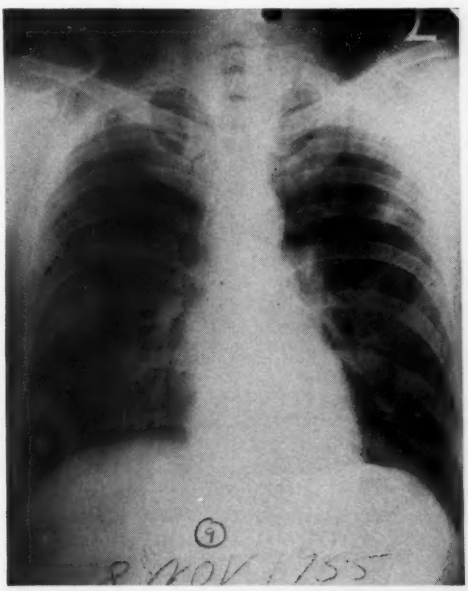

FIG. 13. Case V. 8 November 1955—Reappearance of pulmonary lesions six days following a negative film. The lesions are in both the upper right and upper left lobes.

turned to full duty in the Canal Zone. Since then, serial films have shown an ever-changing picture (Figs. 14 and 15). Serological testing after his return revealed a negative complement fixation titre. However, the collodion agglutination test for histoplasmosis was positive in a dilution of 1:16. This officer has been seen frequently at this activity and no complaints have been elicited.

Comment: This case has been classified as active diffuse pulmonary histoplasmosis because of the changing X-ray findings, the positive histoplasmin skin test, the negative tuberculosis studies and the positive agglutination test. The differential diagnosis involved here was a patchy type of pneumonia, a pulmonary malignancy, tuberculosis and histoplasmosis. A great deal of difficulty can be encountered in such a study in a man in this age group. In cases III and V, we followed the dictum that an isolated pulmonary nodule, the so-called coin lesion, in middle aged people represents malignancy until proven otherwise. In Case V, the coin lesion soon changed to a more diffuse pulmonary picture to help in ruling out a malignancy.

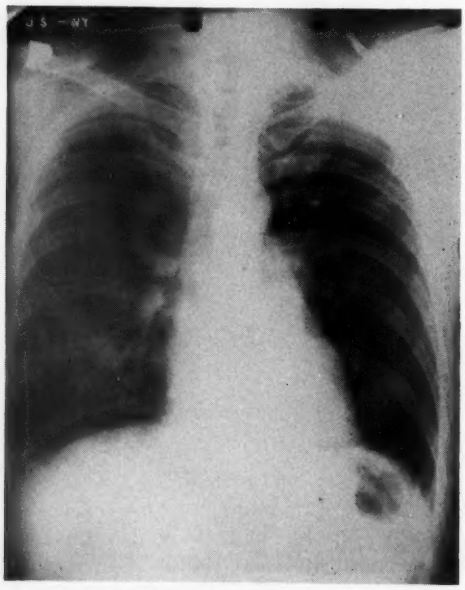

FIG. 14. Case V. 15 December 1955—There has been resolution of the peripheral lesions, but a single nodule may be seen over the originally involved area in the right lower lobe.

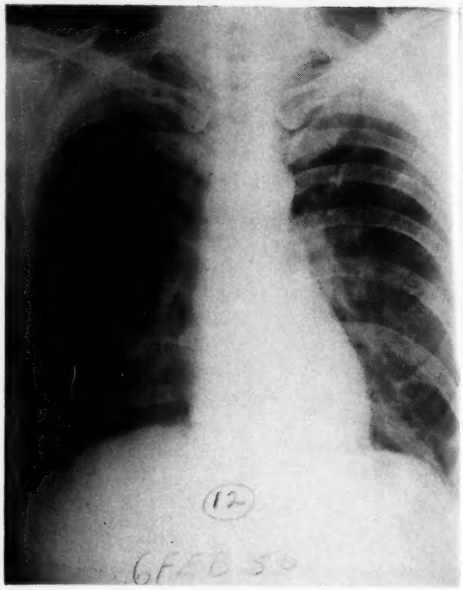

FIG. 15. Case V. 6 February 1956—An essentially negative chest X-ray. The patient has no subjective complaints.

DISCUSSION

The yield of mass chest surveys has been recently deliberated by some clinicians.[1] As we have seen, the incidence of tuberculosis is definitely on the wane. However, we must admit that it is still an ever-present danger and of most critical importance to the military forces. The U. S. Public Health Service has indicated that there has been a slight drop of 2–3 per cent in incidence of tuberculosis in the United States in the past two or three years, but there has been no really significant change. Actually, the incidence may be increasing in some areas in spite of the startling drop in mortality rates. We have not yet reached the stage where we can point to tuberculosis as just another infectious disease.

The success of a mass chest survey today should not be measured by the number of cases of active pulmonary tuberculosis discovered.

We have learned during the past decade that there are other non-tuberculous diseases that may be crippling and yet fairly easily identified on chest X-ray. The chest X-ray is not the sole answer to the diagnosis of pulmonary tuberculosis, but it certainly helps in discovering the early cases of the disease. The control of tuberculosis depends on finding the apparently unsuspected case and instituting early therapy.[8] This was recognized by the United States Navy in the early days of photofluorography.[9] Photofluorography is a relatively easy procedure and very inexpensive. The cost per case at this facility, exclusive of labor, for the 70 mm. film study was about five cents as compared to two dollars for the 14 x 17 inch film. This is indeed remarkably cheap and it is a wonder why the use of photofluorography is not more widespread. Photofluorography is a screening device and not a diagnostic procedure.[10] If we keep this in mind and are able to follow-up all suspicious cases, we have a wonderful clinical aid at our disposal.

Summary

The findings of the 1955 chest survey program at the U. S. Naval Station, Rodman, Canal Zone, are presented. The incidence of pathology among the military, their dependents and U. S. raters averaged 1.5 per cent. This incidence was less than half of that found in Panamanians.

Of 2185 X-rays taken on 70 mm. film, there were no cases of active tuberculosis found. This is the first time that active tuberculosis has not been found at this activity. This absence of tuberculosis is felt to be part of the world-wide changing trend in the epidemiology of this disease.

Five cases of histoplasmosis were discovered in Americans. Histoplasmosis is briefly reviewed and the cases are presented. In a differential diagnostic study of histoplasmosis, many problems arise which are discussed. The chest X-ray does not give a typical picture for this fungous disease, but should be enough to arouse suspicion, so that it may be followed up with other diagnostic procedures.

The changing views of the importance of photofluorography are discussed. Photofluorography is inexpensive and relatively easy. With widespread use, its value is being realized more and more.

Acknowledgments

Sincere thanks go to Lt. Col. G. F. Lull, Chief, Radiology Department, Gorgas Hospital, Ancon, Canal Zone, who read all the 70 mm. films. The author is likewise indebted to Dr. F. Bertoli, Pathology Department, Gorgas Hospital, for histological studies on Cases II and III, and to Dr. R. V. Young, Chest Service, Gorgas Hospital, for his many helpful words of advice.

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References

1. Garland, L. H.: Guest Editorial: The yield of chest X-ray surveys, J.A.M.A. **157:** 1499–1500, April, 1955.
2. Bircher, J. L. and Castle, C. C.: Evaluation of photofluorographic chest surveys in the U. S. Navy, U. S. Armed Forces Med. Journ. **6:** 951–957, July, 1955.
3. Drolet, G. J. and Lowell, A. M.: Whereto tuberculosis? Am. Rev. Tuberc. **72:** 419–452, Oct., 1955.
4. Mastellari, A. V., Young, R. V. and Cleve, E. A.: Personal Communication.
5. Furcolow, M. L., Mantz, B. L. and Lewis, I.: The roentgenographic appearance of persistent pulmonary infiltrates associated with sensitivity to histoplasmin, Pub. Health Reports. **62:** 1711–1718, Dec., 1947.
6. Palmer, C. E. Non-tuberculous pulmonary calcification and sensitivity to histoplasmin, Pub. Health Reports. **60:** 513–520, May, 1945.
7. Christie, A. and Peterson, J. C.: Pulmonary calcifications in negative reactors to tuberculin, Am. Journ. Pub. Health. **35:** 1131–1147, Nov., 1945.
8. Waring, J. J.: The current treatment of pulmonary tuberculosis, Dis. of Chest. **25:** 361–373, April, 1954.
9. Mason, M. M.: Photofluorography for chest surveys, Radiology. **43:** 499–503, Nov., 1944.
10. Gowen, G. H. and Frank, B.: Screening for chest pathology using mass X-ray survey technic, Ann. Int. Med. **36:** 138–145, Jan., 1952.

NINETEENTH CENTURY LEADERS IN INFANT FEEDING

FELISA J. BRACKEN*

The tremendous progress made in the knowledge of nutritional deficiencies and in infant feeding in the 19th century contributed to an enormous decrease in infant mortality at the beginning of the 20th century. The spectre of perhaps a quarter or even half a family failing to survive childhood does not haunt the modern mother. This is due to progress of experimental medicine, the triumph of bacteriology, the better preservation of foodstuffs, the development of the science of nutrition, and a better understanding of physiology and the functioning of the glands of internal secretions (5). Slowly and tediously pediatrics acquired its position in University teaching; became an important part of modern social medicine and procured legislation for the protection of infancy.

Much happened in the 19th century. As communication improved the progress became more rapid. Early in the century the first children's hospital was built. The first university chair in pediatrics was not established until after the middle of the century (37).

The 19th century leaders in infant feeding and the pediatricians of today owe a debt to the past. Abraham Jacobi, one of the outstanding 19th century leaders wrote, "No single man can stand alone, a law to himself and others. Even genius is the child of its time. No Washington or Lincoln, no Hippocrates or Aristotle, no Virchow or Pasteur, or even Koch, none of these immortal ones is a world by himself... Every man has been raised on the shoulders of his predecessors" (18).

It is impossible to mention all who have influenced the development of infant feeding but a glance into the lives of some of these men may lead the reader to make further historical explorations for profit and enjoyment.

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Pediatrists

The ideas of the 18th century influenced the pediatric literature of the early 19th century. William Heberden the Younger (1767–1845) recommended breast feeding for a year if desired, but at least for four months. He praised the cow horn if a child must be hand fed because the child had to labor in sucking from a horn as from the breast. He also mentioned a pear shaped glass bottle. His "Epitome" was written in Latin in 1804 (translated in 1807, by J. Smyth, M. B. of Matlock in Derbyshire, England). Evidently William Heberden was not pleased with this translation, which he criticized as imperfect, with some facts totally misrepresented consequently he produced an English translation in 1807. He recommended giving nourishment to infants in small amounts but often. He cautioned against overloading their stomachs and cramming them with pap. Evidently he had some doubts about the prevailing idea that a healthy infant was continually puking. He emphasized that artificial food should be thin, like human milk, and made of animal and vegetable substances such as asses milk or cows' milk mixed with gruel, barley water, thin panada or rice water. Heberden thought it advisable to change the food from time to time to beef tea, plain broth with a little bread or barley boiled in it then strained through a lawn sieve. At 6 months he advised giving light puddings, solid animal food at the 8th or 9th month and small beer at the end of 12 months (56).

The younger Heberden was a brilliant scholar. He translated and edited commentaries, for his

father, William Heberden, Sr. This may account for the similarity which has led some historians to believe the "Epitome" to be largely the father's idea. The younger Heberden was interested in medical statistics and infant mortality. He attributed the decline in deaths from infantile diarrhea to cleanliness and ventilation. When Heberden's wife died in 1812, he retired from practice to devote his time to the rearing of his children, to translating from Greek and Latin, and to writing, chiefly, theological papers. He returned to London when one of his sons decided to study medicine. This son died of a dissecting wound in 1829. At the time of the younger William Heberden's death he had lost four or five of his children and evidently none of his surviving sons were physicians (3, 56).

John Clarke (1761–1815) a leading London obstetrician who had lectured on midwifery, devoted his later years to the practice of gynecology and pediatrics (18). He was one of the first to advocate the employment of cream diluted with starchy decoctions which became so popular in the 19th century. He also seems to have used whey as a beverage (33).

In 1801 Michael Underwood (1737–1820) brought out a 3 volume edition of his "Treatise on the Diseases of Children" (64). The first edition had appeared in 1784. For nearly 62 years Underwood's book was the accepted text in pediatrics. It replaced Walter Harris' little book printed in 1689 (56). Underwood mentioned the chemistry of milk and reproduced tables showing the chemical analysis of human and animal milks. At this time more than three-fourths of the children of London died under two years of age. Underwood recommended breast feeding but gave directions for hand feeding with boiled animal milk, calves foot jelly and sugar. He pointed out that the feeding pot should be carefully cleansed and scalded daily (64).

Underwood had been placed with a surgeon to learn his work. He studied for a time in Paris. Upon beginning his practice he combined obstetrics with his operative work. He was one of the first licentiates in midwifery of the Royal College of Physicians of London and lived to be the last. He received a honorary diploma making him a Doctor of Medicine. He was a successful accoucheur, whose clientele included persons of rank and consequence. He attended the Princess of Wales at the birth of Princess Charlotte. On the road to wealth and position he had a variety of domestic difficulties and retired from practice in 1801 intending to spend the remainder of his days in seclusion. After a few years he resumed a partial practice until his death in 1820. He was never a wealthy man. His friends had come to his rescue during his life time; and after his death selections from his diary, miscellaneous essays and hymns were published by subscription for the benefit of his widowed daughter (12, 37).

In the early 19th century Karl Bernard Fleisch (1778–1814) of Cassel, Prussia, published a series of excellent bibliographies with his Handbook of Children's Diseases. Fleisch prescribed long pauses between the suckling periods of the nursing infant (19).

Ernest Bouchut (1818–1891) a graduate of the medical school of Paris (1842) and physician to the Hôpital des enfants malades (1872) wrote a book on the hygiene and nutrition of infants (1845, 5th ed., 1866). Bouchut was a famous medical historian of France. His book on infant hygiene is illustrated with interesting pictures of nursing bottles (19).

The tremendous progress made in the 18th century is illustrated by the fact that William P. Dewees (1768–1841) found it necessary to condemn the prevalent practice of the nurse or mother chewing food before putting it into the infant's mouth, and the practice of wrapping infants in swaddling clothes. These practices, in vogue for centuries disappeared during the 19th century. Dewees' text, "A Treatise on the Physical and Medical Treatment of Children" printed in 1825 went into ten editions. Dewees, a Philadelphia obstetrician, recognized the im-

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References: 1. Grieble, H. C. and Jackson, G. G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958. 2. Editorial *New England J. Med.* 258:48-49,1958. 3. Jones, W. F., Jr. and Finland, M., Sulfamethoxypyridazine and Sulfachloropyridazine. *Ann. New York Acad. Sc.* 60:473-483, 1957.

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portance of prenatal supervision, insisted on breast feeding if possible, but gave rules for the care of milk and nursing equipment when hand feeding was necessary. He advocated the bottle over spoon feeding. He directed that the bottle should be washed with hot water immediately after use, immersed in a soda solution while not in use, rinsed in cold water before using. The cow's teat nipple with a piece of sponge in the end should be soaked in whiskey and water between feedings. Dewees anticipated the pasteurization of milk by almost a century. He did not recommend boiling milk except in hot summer but said the advantages could be procured without actually boiling milk. It should be heated in a covered vessel in a sand bath over a hot fire, brought quickly to the boiling point, then cooled as soon as possible (11, 40).

Dewees was of Swedish and English ancestry. He received only an ordinary school education because of the early death of his father. He managed to attend medical lectures at the University of Pennsylvania and began practice with an M.B. degree when only twenty-one. Although youth in appearance, he was industrious, and had a warm, friendly personality. He built an enormous practice and his writings bear witness to his experience. He specialized in midwifery when few doctors knew much about it and helped to establish a chair at the University in this subject. After an attack of pulmonary hemorrhage, in 1812, he gave up his work and retired with his family to a farm in which he invested all his funds. He lost his money but regained his health and returned to his former position and popularity in the practice of medicine. In 1834 he had an apoplectic attack brought on by his laborious occupation, irregular hours and lack of sleep. In 1841, worn out by anxiety and disease he died, an old man of seventy-three (34, 37, 40, 48, 68).

John Eberle (1787–1838) published "A Treatise on the Diseases and Physical Education of Children" in 1833. It was based on Dewees work and contained nothing new or unique (1, 14). However, John Eberle considerably influenced the medical practice of his time. He wrote extensively for periodicals, and was a teacher of marked ability who aided in establishing new medical schools. He spoke intelligently and with great force. Medical students liked his simplicity and unostentatious manner and admired his scholarly attainments (34, 51).

Eberle was one of the "plain people" of Pennsylvania and spoke with a strong German accent all his life. Descended from Swiss exiles, his father was a blacksmith who manufactured bayonets during the Revolutionary War. How John Eberle acquired his excellent education is a mystery. While still in his teens he entered the office of a country doctor to study medicine, later he attended the University of Pennsylvania Medical School and graduated at twenty-one. He was a surgeon during the war of 1812. After the war he attempted to start a practice and also assumed editorship of a German political paper in Lancaster. Being no match for unscrupulous politicians, he was quickly ruined medically and financially. Eberle moved to Philadelphia and was soon lecturing to medical students. He subsequently moved to Ohio and Kentucky (34, 51).

Eberle was a scholar and not fond of general practice. He wanted to assure his sons better educational opportunities than had been his but he was haunted by poverty all his life. Although only 51 when he died, he looked 60 or 65 in his last days. He left his large family in financial difficulties. Two of his sons became physicians (51).

The study of the science of infantile nutritional diseases received tremendous interest from the middle of the 19th century when investigations into the chemistry of foods including human and animal milks were begun (10). Good pediatric work begun by Charles D. and John Forsyth Meigs in the fourth decade of the century was continued by the third Meigs, Arthur V., one of the founders of the American Pediatric Society and author of "Milk Analysis in Infant Feeding," published in 1885 (1).

The Meigs, father, son and grandson were all Philadelphia physicians whose books on infant diseases and feeding certainly influenced infant feeding practices in the United States for over half of the 19th century. Charles D. Meigs (1792–1869) received his Doctor of Medicine degree from the University of Pennsylvania in 1817. He soon became prominent in his profession and lectured in midwifery at Princeton and later in midwifery and diseases of children at Jefferson Medical College. In 1850 he published "Observations on Certain Diseases of Children" (1, 38, 44, 48).

Charles D. Meigs refuted the current argument that physicians cannot know the diseases of children because children cannot explain their symptoms. He said the doctor should interrogate the organs and knock at the door of the functions; they had voices to answer. He concluded the large amount of casein in cow's milk accounted for the frequent indigestion of artificially fed infants. He recommended arrowroot, tapioca, sage, oatmeal, rice or barley water mixed with milk and, like many physicians of his day and earlier, advised changing the type of food from time to time but quoted Dr. Samuel P. Griffitts, a famous 18th century Philadelphia physician, "It is well to let well enough alone" (38, 44, 48). Unfortunately the elder Meigs did not believe in the contagiousness of puerperal fever. This caused his obstetrical work to fall into disrepute (48).

Busy 20th century workers who envy the supposedly simpler, more tranquil life of the past should note with interest Arthur V. Meigs' words, "My grandfather's life was full of excitement and bustle." The elder Meigs was a man of sincerity, a scientist, philosopher and religious thinker, with a thorough knowledge of history and literature (38).

John Forsyth Meigs (1818–1882) one of Charles' ten children, received his degree from the University of Pennsylvania. When not yet twenty, he served two years as a resident physician and traveled and studied in Europe for a year before beginning practice (48). In 1848 he published "Diseases of Children"; in the fourth edition he was associated with Dr. William Pepper (46). Impressive progress is shown in the different editions of his text from the first to the last in 1882 (38). John Forsyth Meigs also wrote "Observations on the Sanitary Care and Treatment of Children and Their Diseases" in which he discussed every phase of the subject including bottles, nipples, and methods of hand feeding (17, 38). He modified milk by adding water, sugar, sometimes cream, and arrowroot or lime water (33). He pointed out that in large institutions the more simply the food could be prepared the better for all concerned. He advocated two hour feeding intervals for the first and second months. Besides being on the staff of Pennsylvania Hospital he wrote articles, gave lectures and belonged to numerous organizations. He is reputed to have made as high as twenty-seven home visits a day (38)!

Arthur V. Meigs (1850–1912) son of John Forsyth, literally followed in his father's footsteps as far as education and training were concerned, except for a special interest in chemistry. He is noted for his analysis of human and cows' milk which showed the casein of human milk to be lower than in most preceding studies (38). In "Milk Analysis and Infant Feeding" he recommended adding lime water to alter the coagulability of the casein in cows' milk. He did not advocate sterilizing containers (33, 42, 43). He refused to accept the germ theory of disease and combated it resolutely until his death (38, 48). He was attending physician at many institutions and belonged to several scientific societies.

In the latter half of the 19th century there were three great humanistic pediatrists: Charles West, J. Lewis Smith and Abraham Jacobi who practiced this branch of medicine, not merely as a scientific specialty, but from a genuine love of children.

Charles West (1816–1898) has been called the greatest pediatrist of his time and was perhaps the most genial practitioner of the art who ever

lived. His father, a Baptist lay preacher, would not permit him to enter Oxford because of religious scruples, so Charles served a medical apprenticeship. He then studied at Bonn, Paris and Berlin, where he graduated with the degree of M.D. in 1837. While waiting for practice in London, he served one summer at a famous lying-in hospital in Dublin. In 1842, Charles West was appointed physician to a children's infirmary and in 1845 was a lecturer on midwifery at Middlesex Hospital. In the meantime, he had written and translated numerous works. In 1848, he published the lectures on the diseases of infancy and childhood which he had delivered the year before at Middlesex Hospital. This work passed through seven editions. It was translated into nearly every European language, and Arabic, also. Henoch, a famous German pediatrician, edited the German translation (5, 10, 19). The importance of breast feeding in the prevention of infantile diarrhea and tuberculosis was emphasized. A table showing the composition of various kinds of milk was included. West believed asses' milk chemically best suited for infant feeding. He maintained that milk of stall fed cows was not as good for children as milk from grass fed cows (67). Jacobi described the book as "one of the most instructive and eloquent in medical literature" (19).

West was a man of refined, sensitive nature, with great ability for speaking and writing, who practiced his profession with priest-like seriousness. The conduct of other men often dissatisfied him and he was sometimes in "hot water" with his colleagues. Nevertheless, he was the ideal physician for women and children (12). The drawers of his desk were full of marvelous toys which he used in a charming ritual with children while diagnosing. He wrote palatable prescriptions and never gave a medicine he had not previously tasted. West practiced pediatrics in "a big human way, rarely equalled and never excelled" (19).

Job Lewis Smith (1827–1897) was born in Onondago County, New York but after graduating from the College of Physicians and Surgeons of New York in 1853, spent the rest of his life in New York City practicing chiefly pediatrics. The first edition of his work "Diseases of Infancy and Childhood" appeared in 1869, went through eight editions, and was for years the standard American textbook on pediatrics. In this text Smith exhibited a personality trait which endeared him to many practitioners—that of being charitable to those holding opinions differing from his own. "While the author has respected the opinions of previous writers, and had adopted them, so far as they appeared to be correct, he has depended much more for the material of his treatise on clinical observations and the inspection of the cadaver." Novel ideas were not presented unless proved by numerous observations (1, 6, 48).

Radical changes in infant feeding that took place in the latter part of the 19th century are illustrated by an examination of two editions of Smith's textbook. In the 1869 edition artificial feeding consumes three pages; in the 1896 edition eleven pages. In 1869 he recommended pap in addition to milk for infants four months old. When it was impossible for a mother to nurse her child he advised the use of a formula of whey, sugar, cream and new milk advocated by an Englishman, C. H. F. Routh. Smith suggested that poor families keep a goat if they could not afford to keep a cow. The milk would be fresh and better for infant feeding than cows' milk brought in from the country. At the approach of warm weather artificially fed infants were the first affected with diarrhea. More than one half of the spoon fed children of New York City died yearly before the return of cool weather. In the country, where fresh milk was more easily obtained artificial feeding was nearly as successful as wet nursing (58). In 1896 Smith recommended the use of condensed milk in emergencies and the free use of orange juice in cases of scorbutus (scurvy) (59).

J. Lewis Smith was one of the founders of the American Pediatric Society in 1889 and its

second President. Many honors were conferred on him. His practice was large and he was known for his kindness, his skill and his generosity towards poor patients. Smith was a gentle, unworldly man who had great concern for his patients and would probably have been called the founder of American Pediatrics had it not been that Jacobi was more outstanding (37).

Abraham Jacobi (1830–1919) was born in Westphalia, where his parents had a small business in cattle trading and storekeeping. After attending the village school and gymnasium at Minden, he matriculated at the University of Greifswald, studied under professors of his choice at other universities (a custom of his time), and graduated at Bonn in 1851. He became involved in the revolution of 1848 and his continued political activities led to his arrest when he went to Berlin for his state examination. Jacobi was imprisoned for two years, escaped to England, then traveled to the United States. Soon he was practicing medicine in New York City (19).

Jacobi was the first to teach pediatrics in the United States (1857) and taught it for nearly half a century in various medical schools of New York including Columbia. He instituted pediatric lectures and courses, founded clinics and hospitals. As a writer of books and essays on pediatrics he contributed prolifically to medical literature, founded pediatric journals and campaigned for medical libraries. Jacobi was a founder and first president of the American Pediatric Society and the recipient of the highest medical honors at home and abroad. In later life he was offered a position at the University of Berlin to head the pediatric teaching, but refused due to his love for his adopted homeland (1, 35, 36).

Interested in medical history and sociology, Jacobi linked the gap between medicine as practiced in the old and new worlds. He knew most of the medical leaders of Europe and America in the second half of the 19th century and was anxious to supply American medicine with some of the enthusiasm and perseverance of the European clinicians. In a great measure he was successful. He devoted hours to study and pages to writing on sociological problems connected with medicine: (29) foundling institutions, crime, capital punishment, child labor, and above all, poverty. He went to the State legislature to fight or institute measures in relation to these problems (36, 49). The Medical Record contains many of these articles, one "Concerning the Neglected Cause of Infant Mortality in the City of New York" is followed by a description of a visit to a foundling hospital in July 1868 (26). "Black blotches on the infants' faces were swarms of flies. Infants who looked fine on admission began to fail in two or three days and sooner or later died" (23).

The importance of breast feeding was emphasized by Jacobi. He was possibly the first man who realized the significance of boiled milk and who advocated its use from 1877, although he emphasized that cows' milk is never as good as human milk. In formulas he used cane sugar, cereal decoctions and salt, and considered a high percentage of fat harmful at a time when many pediatricians were advocating the use of cream (10, 26, 30). Jacobi published many important pediatric papers, among them a notable one on rickets (39).

The scientific writings of Jacobi are injected with humor and almost always contain a few case histories to make the subject human. He possessed keen powers of observation, ability to teach and executive ability. His manner was quiet and dignified, his voice soft and low. He never flattered an audience, but presented plain truths, which he valued above all things. Truth, in his pleasant manner evidently did not offend, for the profession loved and admired him. Jacobi exhibited the highest type of civic and moral courage. He inspired many younger men with whom he came in contact (18, 19, 39).

In 1873 Jacobi married Dr. Mary C. Putnam, daughter of George P. Putnam, the publisher (18). She was the first woman graduate of the Medical School of Paris. Mary Putnam Jacobi

was one of the best known women physicians of her time, a teacher in women's medical schools, who did much to open the doors of the medical profession to women (32, 63). She revised and enlarged her husband's book on infant diet (27) and made many notable contributions to neurology and pediatrics (48). When a post graduate school was opened in New York City in 1882 Dr. Mary Jacobi was clinical lecturer in children's diseases, the first woman to hold such a position in the U. S. Mary and Abraham Jacobi had two sons; one died shortly after birth and the other, when seven years old, was a victim of diphtheria. Their youngest child, a daughter survived to bear Jacobi several grandchildren whom he enjoyed in his later years. Mary Jacobi died of a brain tumor in 1906 (34, 63).

Abraham Jacobi was one of the few fortunate men honored by his profession during his lifetime. On his 70th birthday he was presented with a Festschrift to which the leading pediatricians of Europe and America contributed (28). Jacobi lived to be almost ninety. His long life was spent in the service of humanity (36).

Although Pediatrics was not recognized as a specialty branch of medicine until the 19th century there were, in the latter part of the century, a great many pediatricians who helped solve problems of infant feeding and whose lives and work extended into the 20th century.

Unique was the work of Marie-Jules Parrot (1839–93) a Paris graduate who attempted infant nutrition by direct sucking from the udders of a goat, as depicted in the art of antiquity and recommended by Raulin in 1769 (19).

Germany produced many writers on pediatrics. Alois Bednar wrote a treatise on infant diet in 1857 (19, 37). The lectures of E. H. Henoch (1820–1910) (22) and Carl Gerhardt (1833–1902) (20) were outstanding. Both recommended diluting cows' milk with two or three parts water for a young infant and gradually increasing the proportion of milk until a child of nine or ten months received whole milk (5, 33).

Adolph Baginsky (1843–1918) a Berlin graduate, was one of the most active and practical scientific pediatrists of his time. In Berlin he opened a special polyclinic for children's diseases, taught at the University, helped to found and was director of a children's hospital. With Alois Monti he founded a pediatric journal in 1877. The volume for 1913 was a Festchrift in his honor (19). Among his many studies Baginsky explored the action of the glands of the gastric mucosa (5). He recognized two essential difficulties in infant feeding: 1. the qualitative and quantitative differences in the chemical composition of human and cows' milk, 2. the presence of bacteria and their toxins in milk. He reported that when the dirt and bacterial content of cows' milk was diminished, the results of feeding infants with it were so satisfactory that in the case of healthy infants elaborate methods of altering the composition of milk were superfluous (33, 37). Alois Monti early used two kinds of condensed milk in infant feeding but reported no good results from the use of the kind prepared without sugar (33). He wrote monographs on nutrition up to weaning and on disorders of infantile nutrition (1897–1898) (19).

C. H. F. Routh, the English pediatrician, wrote "Infant Feeding and its Influence on Life" in 1860. He published statistics on infant mortality, called dry nursing a murderous system, but described some new types of nursing bottles; recommended direct sucking from some animal, and the use of patent baby foods popular in the 19th century. He mentions cod-liver oil in teaspoon doses as beneficial in cases of defective assimilation (55). Eustace Smith, whose book "On the Wasting Diseases of Infants and Children" went into several editions, approved the use of cod-liver oil saying it was more a food than a medicine. Like many pediatrists of the 19th century, he was opposed to boiling milk and may have hindered the progress of artificial feeding (57). W. B. Cheadle, an English pediatrician, in 1878, described three cases of scurvy in young children whom he treated with some success by improving their diet (9). Several

editions of his text "Artificial Feeding of Infants" were printed (8).

Toward the end of the 19th century Louis Starr graduated from the University of Pennsylvania, where he became clinical professor of pediatrics. He was the author of "Diets for Infants and Children" (1896). He edited the American editions of James Frederic Goodhart's treatise, which contained a table giving, for the first time, full directions for hand feeding infants of every age (19, 21).

Luther Emmett Holt (1855–1924) was an acknowledged leader of pediatrics in the United States, a strong executive, an able teacher and writer, who stimulated research among his associates. He taught in several schools including Columbia University and was one of the principal advocates of home modification of milk and of pasteurized milk (19, 25, 33, 37). He wrote "Care and Feeding of Children" (1894) so popular with mothers, and "Diseases of Infancy and Childhood" (1896) acclaimed by pediatricians (1, 19). Editions of these books now numbering in the teens have been edited by Luther Emmett Holt, Jr.

Leaders in the Study of Infantile Nutritional Disorders

For centuries the diarrhea of infancy had been one of the most serious pediatric problems (37). Physicians of the 19th century who studied infantile nutritional disorders made valuable contributions to the problem of infant feeding. One of the earliest was Charles-Michel Billard (1800–1832). He studied medicine at the Ecole Secondaire of Angers and acquired funds to study in Paris by a prize essay on the gastro-intestinal mucous membrance. He performed many autopsies on infants and attempted to classify disease according to anatomical lesions (19, 50).

Investigators of nutritional disorders include Theodor T. Escherich (1857–1911) of Munich, a pupil of Gerhardt. Escherich discovered B. coli and attached a great deal of significance to bacteria as the cause of diarrhea (37). He was a great teacher who trained men like Schick (19, 37, 50). He investigated the bacterial flora of infants and their modification in disease (1886). A. B. J. Marfan (1858–1942) laeder of the French school elucidated the pathogenesis and treatment of these disorders and was the author of works on infant nutrition (5, 19).

From 1888 to 1896, William David Booker investigated the bacteriology and pathology of the summer diarrheas of infants. In 1897 he became clinical professor of pediatrics at Johns Hopkins (19).

Alois Epstein (1849–1918) graduated at Prague where he became professor and director of the pediatric clinic in the University. Many noted European pediatricians obtained their first pediatric training at the asylum at Prague under the direction of Epstein, one of the first men of Europe to use foundling institutions for study. By rigid asepsis in infant hygiene, Epstein reduced the mortality in the foundling asylum at Prague from 30% to 5%. He also wrote on the duration of gastric digestion in infancy and the disorders of infant nutrition (19, 37).

Herman Widerhofer (1832–1901) of Vienna wrote articles on diseases of the stomach and intestines for the Gerhardt Handbuch, in which he expressed his views on the pathologic basis for diarrhea. From Widerhofer and his pupils came the close delineations of the disorders of infantile nutrition (19, 40). Theodor August Steffen (1825–1909) of Stettin believed proteins were important in the diet. Because he prescribed ground meat for infants and forbid carbohydrates he was denounced by some of his contemporaries (19, 62). S. J. Gee (1838–1911) of London, gave the first original description of celiac disease (5).

Leaders in the Field of Infant Metabolism and Food Requirements

Men who studied metabolism helped to lay the foundation for scientific infant feeding. In 1861, Voit and Pettenkofer, by means of a special respiration chamber, estimated the amounts of protein, fat and carbohydrate metabolized in the

body. This paved the way to an understanding of nutritional and caloric balance (10, 19). Voit studied amounts of protein in food. Johann Kjeldahl introduced his method of estimating nitrogen content in 1883 (24).

In 1874, Paul Zweifel demonstrated pepsin in the stomach and diastase in the parotid of the newborn. The earliest investigation of the gaseous metabolism of the newborn was made by Joseph Forster, using a Pettenkofer-Voit respiration chamber in 1877. He showed that the infant produced more carbondioxide per unit than the adult (19). Arthur Schlossmann studied fasting metabolism of infants and pointed out the great increase in metabolism following muscular action (5).

The weighing of infants as an aid to the more scientific study of their growth and development was first suggested by the obstetrician Friedrich Ahlfeld of Leipzig in 1878. A number of women physicians established the basic data by weighing their own infants at suckling during the whole period of lactation, thus the nutritive requirement of the nursing infant was evolved (10, 19).

William Camerer introduced the scientific investigation of infantile metabolism into the pediatric clinic. From his own close observations he wrote a treatise on metabolism and energy requirements of childhood from birth to full growth (1894), which won the Stiebel Prize (1898) and was followed by his studies (with Soldner) of the composition of human milk (1895–1903) and changes of weight shown by 283 infants in their first year of life (19, 50).

Max Rubner, a physiological chemist, found that metabolism is proportional to the surface of the body (1883). Carl Bergmann had pointed out a relationship between heat production and surface area of the body in 1847 but this was forgotten until Rubner revived the work. Rubner investigated changes in terms of heat and energy units by calorimetry (1891–1902). In 1898 Rubner and Heubner published a famous monograph on the average daily food requirements of the normal and subnormal infant (10, 19). They found that an infant under six months of age required 100 calories for each kilo of body weight in 24 hours (37).

Otto Heubner (1843–1926) famous German pediatrician and skilled clinician, was the first to calculate infant diets on the basis of their caloric values. In 1894 he built the first respiration calorimeter for infants (5, 10, 19, 37). By a series of observations on the children of physicians he found a variance in the number of calories required by children of equal weight and development; some required twice as much as others (33). Heubner was a professor, director of clinics and founder of hospitals. It was Heubner who succeeded Henoch at the University of Berlin after Jacobi declined. Henry Finklestein, one of Heubner's many famous pupils and his successor at the University of Berlin (5), described his teacher as "a genuine, whole-hearted human man, full of life, movement, fire; natural, original and impulsive in every fiber of his being." In old age Heubner inspired young men by the youthful freshness and charm of his personality (19).

Investigators of Deficiency Diseases

Some investigators noted that adequate quantity of food did not always produce health. As early as 1803 Alphonse Le Roy said "There is in milk, besides the nutritious principles, an invisible element, the element of life itself, a fugitive gas which is so volatile that it escapes as soon as the milk is in contact with air. . . . In the country where cows have plenty of green pasturage there is a greater amount of this life in the milk" (13). Lunin in 1880 showed synthetic milk was not adequate for normal nutrition (50). A few years later Sir Thomas Barlow described the infantile form of scurvy that bears his name and proved that the disease in infants presented the same characteristic changes as adult scurvy (5, 37).

Rickets, a common nutritional disease of former centuries, studied by Guerin (1839), Trousseau (1849), Beyland (1852) and others,

was treated successfully with cod-liver oil by Windaus in 1897 (5).

Investigators of the Chemistry of Milk and the Improvement of the Supply of Animal Milk

Studies of the composition of milk had far reaching effects on infant feeding (50). Alexandre Donne, of Paris, who first observed the blood platelets, published an important treatise on milk (1837) and two books of advice to mothers and families on the rearing of infants (10, 19). J. Franz Simon, a Berlin chemist, made the first extensive comparative chemical analysis of cows' and human milk (1838). Heubner considered this an important step toward rational infant nutrition (19). Later Phillip Biedert did a graduation dissertation on the chemical differences between human and cows' milk (1869) and continued investigations over a period of years. Biedert's figures for casein were lower than Simon's but both studies showed that the casein of cows' milk was higher than that in human milk. Biedert also found that cows' milk treated with acid formed large tough curds while human milk formed small soft curds. In 1888, Biedert pointed to the difficulty of digesting casein as an important cause of infantile disorders and suggested the use of a series of mixtures of cream, water and milk sugar. Biedert was considered one of the originators of the scientific method of artificial feeding. He was one of the founders of the German Pediatric Society (5, 10, 19, 37).

However, the modification of milk met with little success in infant feeding until methods were adopted to insure absence of harmful bacteria (41). The filthy stables and unhealthy condition of London milk cows was described in an article in Lancet in 1855. The writer also stated that as much as three parts water was commonly added to milk (39). Routh, in 1860, mentioned the difficulty of bringing milk to London by railway without having it turn to butter or buttermilk (55). Men who worked to make clean milk both possible and available to people in cities made major contributions to infant feeding.

Alfred Vogel of Munich was the author of a new test for milk (1826) and clinical investigations on typhoid fever (1856) (19). Adolph Baginsky and Arthur Schlossman worked on the problem of "clean milk" (19, 37).

Many outstanding contributions were made by men who did not limit their work to children or who did not practice clinical medicine at all. Louis Pasteur (1822–1895) and Franz von Soxhlet (1848–1907) were not medical men. Pasteurization of milk has added materially to the well being of infancy and childhood. The quest for pure milk was furthered by von Soxhlet's investigations on milk. He introduced the idea of sanitary cow stalls and in 1886 described an apparatus for the sterilization of milk for feeding infants (19, 37).

Thomas Morgan Rotch (1849–1914) of Philadelphia, varied amounts of fat, carbohydrate and protein in formulae to suit the metabolic needs of individual infants. This was called the percentage method of feeding. Rotch established milk laboratories to fill physicians' prescriptions for infant diets (5, 10, 19). The first milk laboratory (Walker Gordon) was established in Boston in 1891 under his direction. Similar laboratories were soon established in London and other large cities (19, 34, 54). Rotch's text "Pediatrics" (1895) went through many editions. He emphasized the importance of knowing the normal infant in order to properly treat the sick one and laid stress on prevention of disease (34, 53). The loss of premature infants seemed to Rotch a needless sacrifice of infant life. He described a new incubator for improved care of prematures and suggested modification of milk adapted to their feeble powers of digestion (52).

Rotch, the great grandson of the early Philadelphia physician Samuel P. Griffitts, graduated from Harvard, studied in Vienna and Heidelberg, then began practice in Boston in 1876. Early in his career he began teaching pediatrics, was the first professor of pediatrics at Harvard

(1888) and taught there for the rest of his life (24). Under his guidance the department became one of the most important in the school and served as a model for other medical schools. Rotch did work at the Boston Dispensary and many Boston hospitals. He was one of the founders and third president of the American Pediatric Society (34).

Toward the end of his life Rotch devoted much time and energy to Infant's Hospital. He was interested in planning a new home for the institution known as the Thomas Morgan Rotch Jr. Memorial. (Rotch's only son died in 1903 within a year after graduating from Harvard.) The memorial building was completed just before Rotch's death. Instead of delivering the first lecture in the new building as he had anticipated for many years, his funeral was held there (34).

Mothers today owe a debt of thanks to Henry L. Coit for the pure milk available to their children. Coit (1854–1917) a Newark, N. J. pediatrician and former pharmacist, made pioneer attempts to standardize the milk supply; founded the first medical milk commission and originated the term "certified milk" (2, 19, 33, 34, 47). When his infant son lay dying during a milk-borne diphtheria epidemic he sought vainly for some clean milk for the child to drink. Upon seeing the filthy condition of the dairy farm which supplied milk to the residents of Newark he resolved to make clean milk available, if humanly possible (34, 47).

In those days milk was delivered in carts and dipped from forty quart cans into any convenient container the housewife supplied. The driver handled the horse and, with the same unwashed hands, the milk a family would later drink. Coit spent five years traveling over the country in his spare time discussing dairymen's problems and investigating the ways of solving them. In 1892 he presented his plan for a medical commission to make agreements with dairymen for physicians to inspect the dairies and veterinarians the dairy stock. Coit was fortunate in finding a dairyman, Stephen Francisco who was willing to cooperate. The dairy drew visitors from all parts of the world. After certified milk was introduced the death rate, where it was used exclusively, declined immediately. Medical milk commissions were soon set up in large cities of the United States and Europe (47).

Coit had unusual ability to inspire and lead people. He was a good organizer and able to raise money for any project he started. "He was both a visionary and a doer of deeds. He saw visions and dreamed dreams, and after long years of persistent and patient effort his visions are realities, his dreams have come true" (47).

Henry Dwight Chapin (1857–1942) of Ohio, who taught at the New York Post Graduate Medical School was concerned with modified milk mixtures, pasteurization and efforts to improve the purity of the milk supply (19). In reporting on the preservation of cows' milk in 1893, to the American Pediatric Society, he mentioned that chemicals were tried in an effort to preserve milk but there were ill effects to the consumer. Dr. Rotch thought it unwise to introduce any foreign element into milk which was given to infants. The advance should be made in the direction of securing pure milk (6). Chapin showed residue from milk separated in a centrifugal machine. Improved methods of feeding and bedding cows were recommended. Joseph Lister had been able to keep milk some period of time by cleansing the udder of the cow before milking. Chapin felt that if pure milk could be secured one pasteurization would be sufficient (6).

At the close of the 19th century leaders still argued about the method of preparing milk for infant feeding. Chapin reported and exhibited a new preparation of sterilized evaporated milk to the American Pediatric Society in 1893. Rotch hoped the Society would put itself on record against the use of evaporated condensed milk which he called a proprietary food. In the ensuing discussion it was mentioned that von Soxhlet mixed a sterilized 15 per cent solution of milk sugar with an equal amount of cows' milk

to produce a substitute for human milk. Rotch said von Soxhlet was a chemist not a clinician. Rotch felt sure human milk could not be imitated that way (6). Jacobi wondered if iron clad rules as to the composition of a substitute were necessary, because human milk varied a great deal in composition. In 1896, he believed only one great item of progress had been made in infant feeding for the past dozen years, namely the heating of cows' milk and all else employed in infant feeding (31).

Roland Godfrey Freeman classified milk-borne diseases (1896) and from the study of epidemics, drew up rules for their control (16). He urged that milk be pasteurized (15). William R. Stokes and Arthur Wegefarth recommended microscopic examination of cow's milk for pus cells and the elimination of an animal from a herd if pus cells were present above a certain count (1897) (61).

Leaders Who Promoted Infant Welfare

The interest in infant mortality as it affected national depopulation was the starting point of the new social science of infant welfare (19). John Bunnell Davis, an English surgeon, helped to found a dispensary for sick and indigent children (1816). This was the first institution of its kind. He published a cursory inquiry into the principle cause of mortality in children (1817) in which he was the first to advocate trained visiting nurses to give instruction to ignorant, indigent mothers on infant nutrition and hygiene.

Theophile Roussel, the French physician-legislator, obtained the enactment of a law for the protection of infants sent out to nurse (1874). It provided for registration licensing and inspection of homes (19, 24). A gradual lowering of the infant mortality throughout France followed (4).

Pierre Constant Budin, Paris Obstetrician, established the first consultations for nurslings (1892) adjunct to a maternity hospital. Infants were regularly weighed and examined. Mothers received instruction in infant nutrition and hygiene (19). Sterilized milk was distributed in small bottles to supplement breast feeding. Budin emphasized how economically this could be done. He encouraged breast feeding. Only mothers who nursed their babies received the full public assistance grant. The cost of sterilized milk was deducted from the grants of mothers who did not nurse their infants (4). Other milk dispensaries were set up by Variot (1893) in Paris and Dufour at Fécamp (1894) (19, 24).

Henri de Rothschild in France and Nathan Straus in New York did great philanthropic work in securing milk-depots for the poor at the close of the 19th century. Henry Koplik established the first milk distributing plants for infants in the United States (37).

Henry Ashby, English pediatrician (1845–1908) was the forerunner of the modern public health officer. He publicized the benefits of infant welfare and a pure milk supply and demonstrated that the infant death rate could be cut very low (19).

Conclusions

How wonderful it is to live in the 20th century and reap the benefits of all this work! Mothers today take it for granted that their babies will live and be healthy. The majority of these children do, even in the poorest families. The scourge of summer diarrhea is forgotten; the baby milk stations and the complicated feeding formulas are gone. Pasteurization, sterilization, testing of dairy herds and infant welfare remain a public responsibility. All of us living today have benefited by the work of the diligent physicians, teachers and scientific men who devoted their lives to furthering the knowledge and practice of infant feeding. Viewed over a time span of only the past 100 years the progress takes on the proportions of a miracle!

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BIBLIOGRAPHY

1. Adams, Samuel S.: The Evolution of Pediatric Literature in the United States. Transactions of the American Pediatric Society. **9:** 5, 1897.
2. Barnhart, Clarence L. and Halsey, William D.: The New Century Cyclopedia of Names. New York: Appleton-Century-Crafts, Inc., 1954.
3. Blumer, George: Some Reflections upon the Life and Accomplishments of William Heberden the Younger. Bulletin of the History of Medicine. **15:** 381, 1944.
4. Budin, Pierre: The Nursling. New York: Imperial Publishing Co., 1907.
5. Castiglioni, Arturo: A History of Medicine Translated from the Italian & Edited by E. B. Krumbhaar, New York: Alfred A. Knopf, 1941.
6. Chapin, Henry Dwight: The Preservation of Cow's Milk. Archives of Pediatrics. **10:** 652, Aug. 1893.
7. Chapin, Henry D.: The Theory and Practice of Infant Feeding. New York: Wm. Wood & Co., 1909.
8. Cheadle, W. B.: Artificial Feeding of Infants. Fourth Edition. London: Smith, Elder & Co., 1896.
9. Cheadle, W. B.: Three Cases of Scurvy Supervening on Rickets in Young Children. The Lancet. **2:** 685, 1878.
10. Davidson, William D.: A Brief History of Infant Feeding. The Journal of Pediatrics, **43:** 74, 1953.
11. Dewees, W. P.: A Treatise on the Physical and Medical Treatment of Children. Philadelphia: H. C. Carey & I. Lea, 1825.
12. Dictionary of National Biography. Edited by Sidney Lee. London: Smith Elder & Co., 1899.
13. Drake, T. G. H.: Infant Feeding in England and in France from 1750–1800. Am. Journal of the Diseases of Children. **39:** 1049, 1930.
14. Eberle, J.: A Treatise on Diseases and Physical Education of Children. Cincinnati: Corey & Webster, 1833.
15. Freeman, Rowland Godfrey: Should all milk Used for Infant Feeding be heated for the Purpose of Killing Germs? If so—at What Temperature and How Long Continued? Archives of Pediatrics. **25:** 509, 1898.
16. Freeman, Rowland Godfrey: Milk as an Agency in the Conveyance of Disease. Medical Record. **49:** 431, 1896.
17. Garrett-Anderson, Elizabeth; Busey, Samuel C.; Jacobi, A.; Meigs, J. Forsyth, & Smith, J. Lewis: The Sanitary care and Treatment of Children and their Diseases. A series of five essays prepared by request of the Trustees of the Thomas Wilson Sanitarium of Baltimore, Md. Boston, Houghton, Mifflin & Co., 1881.
18. Garrison, F. H.: Abraham Jacobi. Annals of Medical History. **2:** 194, 1919.
19. Garrison, Fielding H.: History of Pediatrics. Abt's System of Pediatrics. Volume 1. Phila.: W. B. Saunders Co., 1923.
20. Gerhardt, Carl: Handbuch Der Kinderkrankheiten. Tubingen: H. Laupp, 1877.
21. Goodhart, James Frederic: A Guide to the Diseases of Children. Phila.: P. Blakiston, Son & Co., 1889.
22. Henoch, Edward: Lectures on Diseases of Children, 1861. (English translation). William Wood & Co., New York, 1882.
23. Hillman, Chas. F.: The Dietary of Infants' Hospital, Ward's Island. Medical Record. **3:** 466, 1868–9.
24. Holt, L. E.: Infant Mortality, Ancient and Modern: An Historical Sketch. Am. Assn. for Study and Prevention of Infant Mortality. Transactions. **4:** 24, 1931.
25. Holt, L. Emmett: The Care and Feeding of Children. New York: D. Appleton and Co., 1894.
26. Jacobi, A.: Concerning the neglected causes of Infant Mortality in the City of New York. The Medical Record. **3:** 464: 1868–9.
27. Jacobi, A.: Infant Diet. Revised, Enlarged and Adapted to Popular Use by Mary Putnam Jacobi: New York: G. P. Putnam's Sons, 1874.
28. Jacobi, Abraham: International contributions to medical literature. "Festschrift" in honor of Abraham Jacobi, M.D., LL.D. to commemorate the 70th anniversary of his birth. May sixth 1900. New York, The Knickerbocker Press, 1900.
29. Jacobi, Abraham: On Foundlings & Foundling Institutions. The Medical Record. **7:** 481, 1872.
30. Jacobi, A.: Rules for Feeding Babies. The Medical Record. **8:** 463, 1873.
31. Jacobi, A. Therapeutics of Infancy and Childhood. Phila.: J. B. Lippincott Co., 1896.
32. Jacobi, Mary P.: The Temptation of Johns Hopkins. Medical Record. **38:** 588, 1890.
33. Judson, Charles F. and Gittings, J. Claxton: The Artificial Feeding of Infants. Phila.: J. B. Lippincott Co., 1902.
34. Kelly, Howard A. & Burrage, Walter L.: American Medical Biographies, Balto., The Norman, Remington Co., 1920.
35. Koplick, Henry: The Diseases of Infancy & Childhood. N. Y. & Phila.: Lea Brothers Co., 1902.
36. Levinson, Abraham: Abraham Jacobi. Medical Life. **33:** 466, 1926.
37. Levinson, A. Pioneers of Pediatrics. Medical Life. **36:** 345, 1929.
38. Levinson, Abraham: The Three Meigs and their Contribution to Pediatrics. Annals of Medical History. **10:** 138, 1928.
39. London Milk & London Cows: Report of Commission on Adulterations. Lancet: **2:** 551, 1885.
40. Macneill, Norman: Infant Welfare as Taught in Philadelphia One Hundred Years Ago. Annals of Medical History, N.S. **8:** 36; 1936.
41. Marriott, Williams McKim: Infant Nutrition. St. Louis: The C. V. Mosby Co., 1930.
42. Meigs, Arthur V.: Feeding in Early Infancy. Philadelphia: W. B. Saunders & Co., 1896.
43. Meigs, Arthur V.: Milk Analysis and Infant Feeding. Philadelphia: P. Blakiston, Son & Co., 1885.
44. Meigs, Charles D.: Observations on Certain of the Diseases of Young Children. Phila.: Lea & Blanchard, 1850.
45. Meigs, J. Forsyth: A Practical Treatise on the Diseases of

Children. Second Edition, Philadelphia: Lindsay and Blakiston, 1853.
46. MEIGS, J. FORSYTH & PEPPER, WILLIAM: Diseases of Children. 5th edition, Phila.: Lindsay & Blakiston, 1874.
47. NAYLOR, MILDRED V.: Henry Leber Coit: A Biographical Sketch. Bulletin of the History of Medicine. **12:** 367, 1942.
48. PACKARD, FRANCIS R.: History of Medicine in the United States. Vol. II. New York: P. B. Hoeber, 1931.
49. PAYNE, GEORGE HENRY: The Child in Human Progress. With a foreword by A. Jacobi. New York: G. P. Putnam's Sons, 1916.
50. POWERS, GROVER F.: Infant Feeding. Journal of the American Medical Association. Vol. **105:** No. 10: 753, 1935.
51. RADBILL, SAMUEL X.: John Eberle. The Bulletin of the History of Medicine. **4:** 121, 1936.
52. ROTCH, T. M. Description of a New Incubator. Archives of Pediatrics. **10:** 661, 1893.
53. ROTCH, THOMAS MORGAN: Pediatrics, the Hygienic and Medical Treatment of Children. Phila.: J. B. Lippincott Co., 1896.
54. ROTCH, T. M.: The Value of Milk Laboratories for the Advancement of Our Knowledge of Artificial Feeding. Archives of Pediatrics. **10:** 97, 1893.
55. ROUTH, C. H. F.: Infant Feeding and Its Influence on Life. London: John Churchill, 1860.
56. RUHRAH, JOHN: Pediatrics of the Past. New York: Paul B. Hoeber, Inc., 1925.
57. SMITH, EUSTACE: On the Wasting Diseases of Infants and Children. London: James Walton, 1868.
58. SMITH, JOB LEWIS: A Treatise on the Diseases of Infancy & Childhood. Phila.: Henry C. Lea, 1869.
59. SMITH, JOB LEWIS: A Treatise on the Medical & Surgical Diseases of Infancy & Childhood. 8th ed. New York & Phila.: Lea Bros. & Co., 1896.
60. STARR, LOUIS: Hygiene of the Nursery. Phila.: P. Blakiston, Son & Co., 1888.
61. STOKES, WILLIAM ROYAL AND WEGEFORTH, ARTHUR: The Microscopic Examination of Milk. Medical News, **71:** 45, 1897.
62. STEFFEN, WILHELM: Ueber Ernahrung in Kindlichen Alter Jenseits der Sauglensperiode. Jahrbuch fur Kinderheilkunde: **46:** 320, 1898.
63. TRUAX, RHODA: The Doctors Jacobi. Boston: Little Brown & Co., 1952.
64. UNDERWOOD, MICHAEL: A Treatise on the Disorders of Children, with Directions for the Management of Infants from the Birth. 2nd. ed. London: J. Mathews, 1801.
65. VOGEL, ALFRED: Diseases of Children. Translated by H. RAPHAEL, M.D. 2nd. Am. from 4th German ed. New York: D. Appleton & Co., 1871.
66. WATSON, WILLIAM PERRY: Rotch: Biographical Sketch. Archives of Pediatrics. **10:** 488, 1893.
67. WEST, CHARLES: Lectures on the diseases of Infancy & Childhood. 5th Am. ed. Phila.: Lea, 1874.
68. WILLIAMS, STEPHEN W.: American Medical Biography. L. Merriam & Co., Greenfield, Mass., 1845.

THE PREVENTION AND TREATMENT OF DECUBITUS ULCERS

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It has become a dictum of the past that all patients with severe disabilities must face a bed or wheelchair future. With modern medicine and rehabilitation procedures, many patients can be trained to be independent within the limits of their disabilities and may make satisfactory adjustment in their family and community life. The length of the rehabilitation period and even the final outcome of rehabilitation is influenced by preventable complications which usually occur early in the course of the debilitating illness. Foremost among these complications is the development of decubitus ulcers.

The purpose of this paper is to summarize the problem of decubitus ulcers and the management of this problem in a chronic disease hospital during the eighteen month period from May, 1955 to November, 1956. This period was chosen because of changes in hospital personnel and type of patients admitted. Early in 1955, the hospital obtained a full time physiatrist. Later in the year, a well-staffed physical therapy department was opened. Preference for admission was given to patients with a rehabilitation potential. The number of patients with neurological diseases increased. As a result, the number of

patients with decubitus ulcers upon admission increased and the prevention of ulcers after admission became a more difficult problem.

During this eighteen month period we have treated forty patients with decubitus ulcers; five have had recurrent ulcers. Thirty of the forty patients were admitted for rehabilitation, six for custodial care and four for terminal care. Among the thirty patients with decubitus ulcers admitted for rehabilitation, 4,874 patient days or 13.3 patient years were lost from active therapy because of ulcers. This incredibly large figure is actually low, because patients that have been semi-ambulatory, when put to bed for ulcer treatment, regress and training must be started over again.

Patients are admitted to this hospital from other hospitals, nursing homes, private homes, schools and boarding homes. Since decubitus ulcers are theoretically preventable with proper nursing care and adequate nutrition (5), we were interested in where the patients were at the time the ulcer developed. Twenty-four patients with ulcers were admitted from general hospitals; fourteen developed ulcers after admission to this hospital; three patients had ulcers on admission from nursing homes; three from the patient's own home and one patient was admitted from a vocational rehabilitation center for treatment of his decubitus ulcer.

An attempt has been made to classify ulcers as to severity: Group one as blister formation, erythema and edema without an actual break in the skin—not included in this study; group two as superficial ulceration; group three as involvement of the subcutaneous tissue and group four exposure of bone. In this series, twenty could be classified as group two, twelve as group three and thirteen as group four. It is interesting to note that the thirteen patients with ulcers so severe that there was exposure of bone were all admitted from general hospitals. The average age of this group was forty-three years. Eleven of these thirteen patients were admitted for rehabilitation. One patient, a diabetic, died as a result of uncontrollable infection in the ulcers. Two others in this group have had to undergo amputations of a lower extremity because of complications of the ulcer. In one of the patients undergoing amputation we were able to heal the ulcer completely, but severe contractures and osteoporosis with two pathological fractures developed while the patient was at bed rest.

Of the one hundred ninety-two admissions during this eighteen month period, ninety-six patients had neurological diseases or neurological complications of other chronic diseases. Since these patients have loss of sensory perception and/or difficulty in moving, intensive care is necessary for the prevention of ulcers.

Prevention Program

The prevention of decubitus ulcers is dependent upon trained ward personnel of adequate numbers. Faced with a shortage of personnel, it is essential that a routine be established which can capitalize on efficiency gained from proper training. Ulcers that developed after hospitalization, started with a crack in the skin because the patient was incorrectly positioned on the bed pan, or as a brush burn when the patient was pulled across the bed, instead of being rolled or lifted. Many of the patients, even those on Stryker and Foster frames, were not turned every two hours, usually because the patients asked the attendants not to turn them. A teaching program was instituted for all attendants so that they might develop a better understanding of the problem. Lectures were given using patients who had developed ulcers for illustration. The Physical Therapy Department conducted a teaching program on lifting. The attendants, in turn, took active part by teaching the patients proper skin care. A program was instituted in which attendants kept written charts of the times when each patient was turned. Here again, the attendants increased their own value by gaining the cooperation of the patients.

For those patients able to keep their own charts, the attendants supervised and even worked out devices to awaken the patients at night so that they might turn themselves. The change in attitude of the attendants that came with understanding of the problem has been one of the most rewarding outcome of this program.

Of the fourteen ulcers which developed after the patients had been admitted to this hospital, eleven occurred during the eight months before the new program for prevention was instituted in January, 1956. The fact that only three decubitus ulcers developed during the subsequent ten months attests to the value of the special emphasis placed on this program.

Treatment Program

In our opinion, protection of the ulcer from pressure and contamination plus maintenance of good nutritional status are the most important factors in decubitus ulcer therapy. In addition to turning the patient every two hours, in the Stryker frame or in bed, pressure over bony prominences is relieved by padding. We have used the type of padding instituted at the Kennedy Veterans Hospital in Memphis, Tennessee. This consists of multiple ABD pads about the ulcer area held in place with a wrapping of bias cut stockinet. This has the advantage of keeping the dressing in place and protecting the area, while the patient is allowed to be up.

Scrupulous care to avoid contamination of the ulcer area by urine and feces is essential. Thirty-five out of forty patients in this series required either indwelling catheters or some type of external urinal device. All except the terminal care patients were on a bowel training program. In our experience, it has proved easier to clean and dress the area immediately after the patient's daily bowel movement than to use an oil silk protective covering for the area as is done in some other hospitals.

The nutritional status of the patients with decubitus ulcers must receive careful attention (4). Adequate vitamins and proteins have been proved essential to wound healing. Hemoglobin must also be maintained at normal levels. Adequate protein by mouth, as calculated on an individual basis by the dietitian, ordinarily corrects the subnormal plasma protein values. This includes intermediate feedings, usually milk with a protein hydrolysate. In extreme cases, transfusions and plasma must be used. One of our more severe cases, for example, with ulcers so extensive that the bone was exposed in three areas was admitted with a hemoglobin of 4.8 gms. and a total protein of 3.2 grams. She was given a total of five transfusions, six units of plasma, oral and parenteral vitamins, a high protein diet and intermediate feedings. As a result, hemoglobin was raised to thirteen grams and total protein to 6.65 grams at which levels they remained when the ulcers ultimately healed completely one year later.

Despite the heavy emphasis placed on nutritional status and alleviation of pressure over the ulcer area, it is also clear that successful treatment of decubitus ulcers is also dependent upon the sound use of local drug therapy. Several of our physicians and nurses have had experience in other chronic disease hospitals and have been exposed to the multiplicity of chemotherapeutic measures applied to decubitus ulcers (1, 2). For a six-month trial period, many of these methods were employed. In January, 1956, we instituted a uniform routine for local therapy which is simple, effective and requires a minimum of extra time on the part of ward personnel. Ulcer charts with a permanent written record are kept. All ulcers are dressed daily unless ordered otherwise by the ward physician, but are redressed immediately, if the area becomes contaminated. The dressing procedure consists of first cleaning the ulcer and surrounding area with Phisohex, if necessary, cauterizing hypertrophied granulation tissue with silver nitrate, rinsing the entire area with saline solution, applying the appropriate

therapeutic agent (discussed below) under sterile gauze and then fixing ABD pads in place with stockinet. Sterile technique is used throughout. The ulcer chart is then posted; in this way, a day to day account of progress can be easily determined.

For infected ulcers and those requiring debridement and until the ulcer is clean and granulation tissue is present over the entire surface Panafil Ointment is used. This preparation combines the proteolytic enzyme, papain, with urea and chlorophyll derivatives. Continued use keeps the ulcer clean and appears to provide an environment which permits the natural healing processes to advance in an optimal manner. With this preparation in only one case has it been necessary to use systemic antibiotics or other antibacterials for local infection. Of twenty-seven cases treated with Panafil, three developed some skin sensitivity. When used later on two of these patients, there was no recurrence of the hypersensitivity.

After healing has progressed to the point where the lesion is clean, granulating well and reduced in size, Tetracyn Ointment as prophylaxis against reinfection is used sparingly. When the ulcer becomes dry, the area is painted with Merthiolate.

We are unable to evaluate the surgical treatment for decubitus ulcers (3). This hospital has no facilities for surgery and it has been difficult to transfer patients to general hospitals for elective surgery. Only two patients in this series have had surgical repair. Both are paraplegics who developed recurrent ulcers while at home on leave. In both, surgery has been done too recently to evaluate the results. With the two exceptions mentioned earlier, we have been able to heal all ulcers with medical treatment. The period required to heal these ulcers is time that could much more profitably be spent on the rehabilitation of the patient and we hope, in the future, that this period can be reduced by surgical repair.

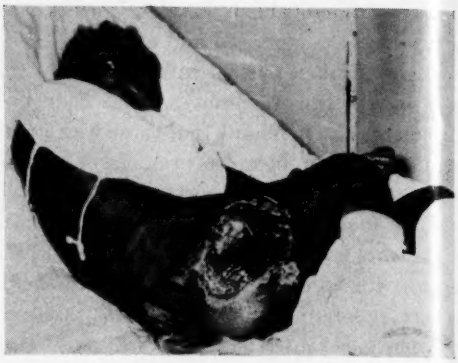


FIG. 1 Ulceration over right hip on admission in Feb. 1956

FIG. 2 Ulceration over left hip and sacrum. Feb. 1956

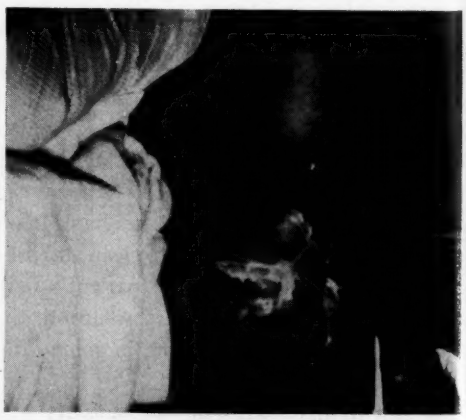


FIG. 3 Ulceration over left hip completely healed, Nov. 1956

FIG. 4 Ulceration over right hip and leg, Nov. 1956. Leg completely healed. Small central unhealed area over hip.

As an illustration of the type of patient that has been treated successfully a case history with illustrations is presented:

F. P., a 65 year old colored female, was admitted on February 16, 1956 as a transfer from a general hospital. There was a history of lymphedema of the left leg of 25 years duration with a chronic stasis dermatitis. The patient had been ambulatory until the last week of November, 1955, when she developed a dermatitis of the right lower leg. On December 12th, she was admitted to the referring hospital, where she remained for nine weeks before admission to Montebello.

On physical examination, there was marked pallor of the mucous membranes. Patient showed evidence of recent weight loss. The tongue was smooth and red and the teeth in poor condition. There were extensive decubitus ulcers over the pelvis; on the right, three inches of the proximal femur could be visualized, on the left, the ulceration extended into the hip joint, posteriorly the sacrum was exposed. Both lower legs were denuded and there were numerous ulcerations over the feet. Laboratory tests showed a hemoglobin of 7 grams, a total protein of 5.9 grams with an A/G ratio of 0.47.

The patient was treated with a high protein diet, intermediate feedings, parenteral and oral vitamins, iron, plasma and transfusions. She was placed on a Foster frame and turned every two hours. Bladder drainage with a Foley catheter was continued. Locally the ulcerations were treated with Panafil Ointment. All areas were well padded and in this case, dressings were changed every other day. Within two months, the ulcerations were clean and healing; hemoglobin and total protein were normal. By October, all ulcerations had healed with the exception of the ones over the right hip and left lower leg. The Foley catheter was removed and bowel and bladder training instituted. The patient was moved to a regular bed. By November, she was completely continent and physical therapy was started. At the present time, all the decubitus ulcers have healed and the patient is beginning to walk.

SUMMARY

1. Decubitus ulcers constitute a major deterrent to rehabilitation of the chronically ill patient.

2. Although decubitus ulcers are theoretically preventable, data is presented to show that a high percentage of patients admitted to a chronic disease hospital have ulcers at the time of admission.

3. A systematized program for prevention and treatment is described by which the incidence of decubitus ulcers developing in the hospital has been greatly reduced and the healing of existing ulcers significantly improved.

Montebello State Hospital
Harford Road and Herring Run
Baltimore 18, Maryland

BIBLIOGRAPHY

1. Astley, G. M., Bedsores. Am. J. Surg. **50:** 734, 1940.
2. Conway, H. and Griffith, B. H., Plastic Surgery for Closure of Decubitus Ulcers in Patients with Paraplegia. Am. J. Surg. **91:** 946, 1956.
3. Freeman, B. S., The Treatment of Bedsores in Paraplegic Patients. Surgery **21:** 668, 1947.
4. Mulholland, J. H., Co, Tui, Wright, A. M., Vinci, V. and Shafiroff, B., Protein Metabolism and Bedsores. Ann. Surg. **118:** 1015, 1943.
5. Yoeman, M. P. and Hardy, A. G., The Pathology and Treatment of Pressure Sores in Paraplegics. Brit. J. Plast. Surg. **7:** 179, 1954.

WORLD HEALTH ORGANIZATION

The World Health Organization is a body set up by 88 countries of the world (membership is open to all States) to co-ordinate international health work and to assist governments, on request, in strengthening their health services. Its objective is the attainment by all peoples of the highest possible level of health.

NO NEW TRANQUILIZER REGULATIONS AT PRESENT

Congress is not expected to make any regulations regarding tranquilizer drugs this year. The issue was studied by a House Government Operations Subcommittee in three days of hearings. Experts who testified, with few exceptions, said that they did not believe that new legislation was needed.

The investigation was started by reports that some manufacturers of tranquilizers were misleading doctors in literature describing these drugs and in advertisements in medical journals. The public has become aware of these exaggerated claims and is trying to persuade doctors to prescribe the drugs whether they are medically indicated or not.

A report, to be issued by the Committee later in the year, is expected to point out some of the danger areas explored at the hearings but not to make a strong demand for further federal regulation.

Component Medical Societies

ALLEGANY-GARRETT COUNTY MEDICAL SOCIETY

LESLIE E. DAUGHERTY, M.D.
Journal Representative

HINEBAUGH SANITORIUM AND HOSPITAL

Located at Second and Alder Streets, Oakland's second hospital had a very flourishing existence from 1908 to 1919. The late Dr. Mahlon Hinebaugh owned and occupied the sanitorium and hospital. Surgeons and specialists from Cumberland acted as consultants. The late Dr. Arthur Hansen Hawkins performed many original operations there in its early days.

Dr. Hinebaugh was born June 4, 1868 and died January 2, 1946. He graduated from the University of Maryland in 1892 and came to Oakland that year. At one time, he was a member of the Oakland Town Council.

DR. ALEXANDER J. MOZZER MAKES HEADLINES IN CUMBERLAND NEWSPAPER

Rated by The Sunday Times sports editor, as a "Top Notch Scout" for the University of Connecticut, Dr. Mozzer, a quiet unassuming man rather than an ebullient athletic fan, is a movie making scout who screens promising athletes for miles around.

Often traveling thousands of miles to pick the best for his Alma Mater, he is never derelict in his duties as resident physician for the Western Maryland Railway Company.

Graduating from the University of Connecticut in 1934 and Hahneman Medical College, Philadelphia, Pennsylvania in 1938, he located in Cumberland after serving in the armed forces during the late War. He is married and has two children.

PERSONALS

Dr. Benedict Skitarelic, of Cumberland, in January, addressed the Potomac Valley Medical Society on "Diagnosis by Exfoliative Cytopathology." This Society is composed of four adjoining County Societies in West Virginia. Dr. Skitarelic also spoke to the members of the Women's Guild of St. Matthews United Church of Christ in Bowling Green, Cumberland. His subject on this occasion was heart disease and its cure.

Dr. Calvin Y. Hadidian, Cumberland, narrated a color film on surgery of the "blue baby" at a recent meeting at the Fort Cumberland Post, American Legion.

Dr. Richard W. Trevaskis, Sr. was elected Vice-president of the Duke Memorial Bible Class in Cumberland. The Duke Memorial Bible Class was organized in 1909 in memory of Dr. E. T. Duke, former Cumberland Health Officer and general practitioner.

Dr. Robin Feddis was the guest speaker of the Alumnae Association of Sacred Heart Hospital in Cumberland. His subject was "Congenital Anomalies of the Extremities."

Dr. W. Royce Hodges, Chief of Staff of Memorial Hospital, Cumberland, crowned "Miss Sweetheart" at the Valentine dance given by the students of the hospital's School of Nursing.

Dr. Joseph Alvarez, Chief of Staff of the Memorial Hospital, Oakland, gave a lecture on improved surgical instruments and techniques. This was followed by a guided tour of the hospital which was attended by members of the Auxiliary of the Garrett County Memorial Hospital and friends.

Dr. Samuel M. Jacobson, Cumberland, has been appointed Regional Chairman of the "Greater University of Maryland Fund."

Dr. Abdul Hashim has opened an office in Cumberland for the practice of pediatrics. He is a 1951 graduate of the Royal College of Medicine in Baghdad, Irak and later trained in this specialty in America. Dr. Hashim is certified by the American Board of Pediatrics.

Other physicians certified by the American Board are: Doctors Calvin Y. Hadidian, Richard Trevaskis, Jr., Robert Feddis, Frank T. Cawley, R. Rheet Rathbone, David H. Miller, and Mark M. Kroll, all of Cumberland, and Dr. A. Alvarez, Oakland.

BALTIMORE COUNTY MEDICAL ASSOCIATION

SAMUEL P. SCALIA, M.D.

Journal Representative

The monthly meeting of the Baltimore County Medical Association was held on February 26, 1958 at the Park Plaza Hotel in Baltimore city. The meeting had been postponed for one week because of an exceptionally heavy snowfall.

Dr. William Pillsbury, President, announced that the Doctors' Day Dinner Dance would be held on Friday, March 21, at the Greenspring Inn on Falls Road in Baltimore County.

Dr. C. Lee Randol, Secretary-Treasurer, presented the Treasurer's Report for 1957. During the past two years our association has increased its assets by about $600.00. It was recommended that this money be placed in our special savings account.

As there was no one scheduled to speak on a scientific topic, the meeting was open for discussion. Dr. B. Sollod introduced the subject of the closed panel clinic now operating at the Martin plant. He informed the society that closed panel medicine would soon be in operation at the Bethlehem Steel Company. This panel is being fostered by the United Automobile Workers Union. It is not compulsory for Union members to subscribe, but they are expected to do so. Each family is charged $5.00 per month and this sum is deducted from the Union member's pay-check. Dr. Sollod and his Essex-Middle River colleagues feel that this type of service is the "wedge to socialized medicine," as there are some forty million Union members throughout the country. Dr. Stanley Bociek, of the Bethlehem Steel Company, then stated that it is the policy of that company to take no part in Union sponsored plans. Therefore, the company is not concerned with how its employees contract for medical care.

Dr. Pillsbury told the society that the doctors on the closed panel were all members in good standing of the Baltimore City Medical Society and that they were abiding by the rules and regulations of the American Medical Association.

A committee will be appointed by our president to work aggressively with the City society on this problem. A meeting of this committee with members of the panel is contemplated to discuss all phases of this matter.

FREDERICK COUNTY MEDICAL SOCIETY

LOUIS R. SCHOOLMAN, M.D.

Journal Representative

The March meeting of the Society was held at the Francis Scott Key Hotel in Frederick on February 25th instead of on February 18th. The postponement was necessary because drifted snow had made the roads impassable. The movie entitled "Life and Two Women," produced by the American Cancer Society, was shown. The Society then directed the Public Relations Committee to see that a physician was present at each showing of the film to non-professional groups to explain it, and to answer questions.

The rest of the meeting was devoted to a discussion of Social Security for physicians. The Society went on record as desiring Social Security coverage for themselves and a resolution to this effect is to be sent to the Medical and Chirurgical Faculty of Maryland.

WICOMICO COUNTY MEDICAL SOCIETY

THOMAS C. HILL, JR., M.D.

Journal Representative

A meeting of the Wicomico County Medical Society was held on February 10th following a dinner attended by a number of the members and their

wives. During the business meeting a report was made by Dr. Briele on the work of the Public Relations Committee.

A series of programs has been planned publicizing the Polio Drive in January, the Heart Drive in February and the March cancer program. Included in this report was a list of available speakers on subjects of medical interest. Dr. Tamasi is contacting various lay organizations and informing them of this bureau.

A panel discussion was then held on "Psychiatry and Religion." Dr. Alfred Ledermann was the moderator and the panel members were the Rev. Mr. Varley, Father Dickerson and Rabbi Moseson. This enlightening discussion was enjoyed by the members of the society and a number of guests.

* * *

The Board of Censors to the County Medical Society was enlarged by two new members—Dr. Christensen and Dr. Mitchell.

SYMPOSIUM ON TUBERCULOSIS AND OTHER PULMONARY DISEASES

Saranac Lake, N. Y.

July 7 to July 11, 1958

All physicians are cordially invited to attend the Seventh Annual Symposium for General Practitioners on Tuberculosis and Other Chronic Pulmonary Diseases. This symposium is sponsored by the American Trudeau Society, the Saranac Lake Medical Society, and the Adirondack Counties Chapter of the New York State Academy of General Practice. It will be held in various sanatoria and laboratories in the Saranac Lake area from July 7 to July 11, 1958.

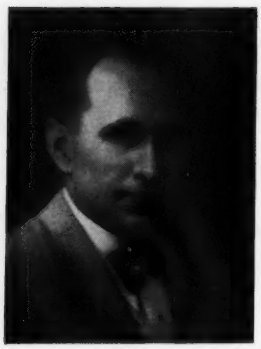
Morning sessions are from 8:30 to 12:30 daily; afternoon sessions from 2:00 to 4:00 on Monday, Wednesday and Thursday. On Tuesday and Friday afternoons there will be elective sessions. On Monday night, there will be a dinner for physicians, their families and the faculty.

Free bus transportation will be provided for doctors attending the course from Saranac Lake to the various meeting places.

For details concerning this program, consult the brochure on file in the Library of the Medical and Chirurgical Faculty, 1211 Cathedral Street, Baltimore.

Necrology*

James Arthur York, M.D.
1893-1957



JAMES ARTHUR YORK, M.D

Dr. James Arthur York, one of our ablest and most beloved physicians, died at his home in Friendship, Maryland on July 20, 1957. His death removed from the Baltimore scene a truly outstanding gynecologist and Christian doctor, one who combined the highest ethical standards with a profound consideration for the social, financial and emotional status of his patients.

Born in Tennessee, he was the son of the Rev. James Milton York and the late Emma Shubert York. Dr. York was graduated from Randolph-Macon College in 1916 and served with distinction overseas with the 29th Infantry Division in World War I. In 1923 he was graduated from the Johns Hopkins School of Medicine and served as a house officer at the Hospital for the Women of Maryland. He was then resident in that institution before entering practice as an anesthesiologist. He was for many years an anesthetist and was a leader in that field.

In 1942, he decided that what he really wanted to do was specialize in gynecology. So he re-entered the Hospital for the Women of Maryland and was Resident in Gynecology for the term 1942–43. At the end of this period of training, Dr. York opened his office for the practice of gynecology. During the space of life left to him, he became a leader in this branch of medicine.

A year after graduation from medical school he married Josephine Hamilton Prout, of Baltimore who survives him.

Dr. York was a man of varied activities aside from his medical work. He was president of the Board of Trustees of Randolph-Macon College, Women's Division, in Lynchburg, Virginia, and a trustee of the Randolph-Macon Academy, in Front Royal, Virginia. He was a trustee of the Men's Division of Randolph-Macon College, Ashland, Virginia. He was also active in the work of the Goodwill Industries in Baltimore, and was a trustee of the Gaithersburg Methodist Home. He was a member of the Baltimore City Medical Society and the Medical and Chirurgical Faculty of Maryland.

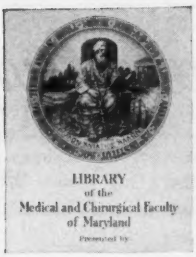
Dr. York will always be remembered by his friends as "Duck," a term derived from his swimming ability. He was an ardent golfer and an enthusiastic fisherman. Although deeply religious, he greatly enjoyed a friendly poker game and was also a good storyteller.

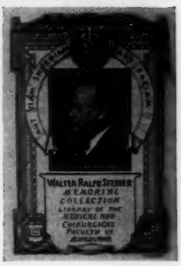
In addition to his wife and father, he is survived by a son, Douglas H. York of Bon Air, Virginia, a daughter, Mrs. O. Clarke Chesium, of Monterey, California, and three grandchildren. Also surviving are his sister, Mrs. Mabel Miller, of Washington, D.C., and two brothers, Dr. W. H. York, of Princeton, New Jersey, and the Reverend Charles A. York, of Danville, Virginia.

His circle of friends was of an ever-increasing size since his personal charm was one of his greatest attributes. His rich sense of humor, complete honesty, genuine warmth, and affable relaxed manner endeared him to students, patients, and colleagues alike. A steadfast friend, a distinguished physician, "Duck" York was all of these and more. Those who knew him well are far richer for the experience.

Wetherbee Fort, M.D.

* A. S. Chalfant, M.D., "Memoir Appointee."





Library

Louise D. C. King *Librarian*

"Books shall be thy companions; bookcases and shelves,
thy pleasure-nooks and gardens." *Ibn Tibbon*

"Upon the education of the people of this country
the fate of this country depends"
Benjamin Disraeli
House of Commons, 15 June, 1874

QUESTIONS AND ANSWERS

In these days of public relations—with widespread advertisement of drugs and the publicizing of new medical and surgical treatment, of the doctor and his services, and of medicine in general—the lay public turns to the organized medical societies for help and clarification of an often muddled frame of mind. We, in the Library, are asked many questions, most of which, unfortunately, can only be partially answered. You, who practice medicine and are the goal of these people, are probably aware of these facts and know it is not enough to brush the public aside.

The catholicity of the questions is surprising: What doctors practice hypnotism? What general practitioners have X-ray machines? Will we recommend doctors using certain therapies? Who specializes in diseases for which there is no specialty per se? Who gives a new treatment read of, or heard about over the radio? Some individuals are selecting a doctor or changing their physician. These require information, though we are quite sure many of our questioners are quite unable to evaluate a doctor's educational background, which is all we can tell them. Membership in many societies, alone, always impresses the public. Then we are increasingly besieged by those who want to know of physicians in their own neighborhoods or of those who will make house calls. We are also constantly asked for information on convalescent homes, particularly for those catering to nervous and mental cases.

The foregoing is but an outline of some of the problems with which your librarians must deal. We make no recommendations. We only give information which is in print and are careful to give the source of such material. To refer those wanting a hypnotist to Phipps; to state we are unable to tell them who may have an X-ray machine; to suggest they ascertain from whom, or where, the information on new therapies emanated and to get in touch with them is not the whole answer to the problem. We have no way to tell which doctors confine their practice to the office and which will accept calls. The educational background of a physician must mean very little to many of our questioners. That the staff of a hospital is reputable or that a convalescent home is licensed or run by a registered nurse, is insufficient material on which to make any evaluation. However this is all we can give them.

The time is fast approaching when this problem of where to obtain information must be solved to the mutual satisfaction of doctor and potential patient. What the solution will be is problematical. Is it a proper function of a medical library to answer such questions and, if so, what aids can be used to perform the duty more satisfactorily? Should the volume of such work increase rapidly, it must be done by the sacrifice of other duties. We are here for the benefit of all physicians in the State. As an individual physician you should express yourself on this question. We feel sure that Dr. Louis Krause, Chairman of your Library Committee, would be glad to have your reactions and suggestions. Why not write to him today?

Maryland
SOCIETY OF PATHOLOGISTS INC.
PAUL F. GUERIN, M.D., *President* ROBERT D. SOLOMON, M.D., *Secretary*
Sinai Hospital, Baltimore 5, Md.

CLINICAL LABORATORY EVALUATION IN MARYLAND

The usefulness to the clinician of laboratory tests in diagnosis and treatment varies in direct proportion to the confidence the clinician has in the accuracy of the results furnished by the pathologist and the medical technologists who work with him. Maintenance of a high degree of reliability in his analyses must be a constant objective of the pathologist. Recognition of the continual change in reagents, in instruments and in personal factors affecting results has given rise to multiple sources of control material and instructional techniques by laboratory directors ever aiming to insure a higher caliber of work. In Maryland these include:

(1) A continuing program of the Maryland Society of Pathologists wherein chemical samples, blood smears and parasitology specimens are submitted to participants as unknowns for analysis. The known content is divulged by return mail on receipt by the Evaluation Committee Chairman of a given laboratory's findings.

(2) Availability, at low cost, from the College of American Pathologists of prepared standards for nitrogen, calcium, glucose, uric acid, chloride, creatinine, phosphate, protein, sodium-potassium and alcohol. These are provided in small ampules suitable for frequent spot checking of the working standards in use in the laboratory.

(3) Distribution by the Bureau of Laboratories of the State Health Department of unknowns in chemistry, bacteriology, hematology, parasitology and serology. In these surveys, the unknowns are sent to three reference laboratories and, four weeks after the samples are sent out, mimeographed lists showing the values obtained by the reference laboratories and the participating laboratories are distributed.

(4) Availability through the M.S.P. Committee on Laboratory Evaluation of experts to visit a laboratory and iron out flaws in its operation should the director feel the need for special skills not in his own armamentarium.

(5) The services of reference laboratories and consultants through the cooperation of the Public Health Service and the Armed Forces Institute of Pathology when specimens of unusual interest or difficulty are encountered.

(6) The conduct of workshops in blood banking, parasitology and hematology by the State Health Department with invited experts to assist in the instruction. All laboratory workers in the State are invited.

(7) A forthcoming series of workshops for technologists sponsored by a Joint Committee of the M.S.P. and the Maryland Society of Medical Technologists in instrumentation, chemistry, hematology, blood banking, parasitology and bacteriology.

With these aids at hand and an attitude of searching self-appraisal by the pathologist, laboratory work in Maryland should be excellent.

Health Departments

BALTIMORE CITY HEALTH DEPARTMENT

Committee Appointed To Study Tuberculosis Control Program

In view of Baltimore's continuing tuberculosis morbidity and mortality the Commissioner of Health has appointed an *ad hoc* Committee to Survey the Baltimore City Health Department's Tuberculosis Control Program.

The chairman of the committee is Dr. Edward Blomquist, Director of the Tuberculosis Program of the U. S. Public Health Service. The other members are: Dr. Edmund Beacham, Chief of the Tuberculosis Division at Baltimore City Hospitals; Dr. Leon Hetherington, Chief of the Bureau of Tuberculosis in the Maryland State Department of Health; Mr. Frank Jones, Executive Director of the Maryland Tuberculosis Association; and Dr. Philip Sartwell, Professor of Epidemiology at the Johns Hopkins School of Hygiene and Public Health. The first meeting of the committee was held on March 5.

This is not the first time the Baltimore City Health Department's tuberculosis control program has been critically reviewed. A like survey was made at the request of the Commissioner of Health in 1940 by Dr. Allen W. Freeman, then Professor of Public Health Administration at the Johns Hopkins School of Hygiene and Public Health, and his report and recommendations were published in the December, 1940 issue of *Baltimore Health News*.

The Committee under Dr. Blomquist will concern itself especially with three aspects of the tuberculosis program: (1) methods for improving case finding procedures, (2) the question of BCG vaccine in the prevention of tuberculosis, and (3) the question of using recently discovered drugs to protect individuals in close contact with cases of tuberculosis.

In Baltimore City tuberculosis is perhaps the most costly public health problem among the preventable diseases. When the cost of hospitalizing those ill with tuberculosis is added to the cost of preventing the spread of this disease, the sum of $3,500,000 is a reasonable estimate of the public funds expended each year for this disease as it occurs in our city. Our aim, with the aid of the Committee, is to modernize and pinpoint the City Health Department control efforts so that they will be most effective at the least possible cost.

Huntington Williams, M.D.

Commissioner of Health

STATE DEPARTMENT OF HEALTH

Changes in the List of Reportable Diseases

The Maryland State Board of Health adopted a revised list of reportable diseases in Maryland at its meeting on February 21, 1958. This new list of diseases, which will be identical for Baltimore City and the counties of Maryland, will appear on new report cards to be issued by *July 1, 1958*.

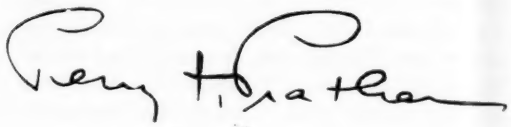
The report card currently in use in Baltimore City carries the list of reportable diseases adopted by the Maryland State Board of Health in 1952. The report card now in use in the counties of Maryland carries a list of reportable diseases proposed by the Public Health Service in 1955. These two lists have differed in several respects and we are very pleased that the recent action of the State Board of Health will make possible an identical list of notifiable diseases for all areas of the State of Maryland. We also believe it will be helpful to practicing physicians, particularly in Montgomery and Prince George's County, to know that each of the diseases on the newly adopted Maryland list appears on the District of Columbia list. A few additional disease conditions are included in the Washington, D.C. list because of local problems or interest.

The newly adopted list of reportable diseases is as follows:

Anthrax

Botulism

Brucellosis
Chickenpox
Cholera
Diphtheria
Dysentery,
amebic,
bacillary
Encephalitis, infectious
German measles
*Gonorrhea
Hepatitis, infectious serum
Leprosy
Leptospirosis
Malaria
Measles
Meningococcal infection
Meningitis, other
Mumps
Plague
Poliomyelitis
Psittacosis
Rabies
Rocky Mountain spotted fever
Salmonellosis, typhoid fever, all other including paratyphoid
Smallpox
Streptococcal infection, including scarlet fever and strep sore throat
*Syphilis
Tetanus
Trichinosis
Tuberculosis
Tularemia
Typhus fever
Whooping cough
Other communicable diseases during an outbreak.
All occupational or industrial diseases.



Directo

* Venereal diseases shall be reported in sealed envelopes.

AMERICAN MEDICAL GOLFING ASSOCIATION TOURNAMENT

The American Medical Golfing Association is holding its annual tournament, in conjunction with the A.M.A. Convention, June 23, 1958 at the Olympic Lakeside Golf and Country Club, San Francisco. A whole day of rest and relaxation is planned, with golf, luncheon, banquet and a prize for everyone. Tee off time: 8:00 a.m. to 2:00 p.m. All golfing doctors are cordially invited to attend. Handicaps scratch to 30 in flights.

For information contact: Dr. James J. Leary, Secretary, 450 Sutter Street, San Francisco, California.

STATE OF MARYLAND DEPARTMENT OF HEALTH

MONTHLY COMMUNICABLE DISEASE REPORT

Case Reports Received during 4-week Period, March 28–April 24, 1958

	CHICKENPOX	DIPHTHERIA	GERMAN MEASLES	HEPATITIS, INFECT. AND SERUM	MEASLES	MENINGOCOCCAL INFECTIONS	MUMPS	POLIOMYELITIS, PARALYTIC	POLIOMYELITIS, NON-PARALYTIC	ROCKY MT. SPOTTED FEVER	STREP. SORE THROAT INCL. SCARLET FEVER	TYPHOID FEVER	WHOOPING COUGH	TUBERCULOSIS, RESPIRATORY	SYPHILIS, PRIMARY AND SECONDARY	GONORRHEA	OTHER DISEASES	DEATHS: Influenza and pneumonia
Total, 4 weeks																		
Local areas																		
Baltimore County	47	—	92	—	212	—	14	—	—	—	16	—	1	7	—	—	m-1	6
Anne Arundel	3	—	8	—	61	—	—	—	—	—	11	—	2	9	—	1	e-1 m-2	5
Howard	—	—	—	—	2	—	—	—	—	—	—	—	—	1	—	1	—	—
Harford	—	—	—	—	1	—	—	—	—	—	1	—	—	1	1	—	—	1
Carroll	3	—	—	—	10	—	2	—	—	—	—	—	—	3	—	—	—	8
Frederick	6	—	3	—	5	—	—	—	—	—	5	—	—	3	—	3	t-1	5
Washington	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	8	—	3
Allegany	1	—	—	—	2	—	—	—	—	—	—	—	—	2	—	2	—	2
Garrett	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Montgomery	30	—	72	—	110	—	3	—	—	—	13	—	—	1	—	—	—	3
Prince George's	5	—	54	1	55	—	3	—	—	—	3	—	1	9	—	—	m-3	—
Calvert	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—
Charles	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	1	—	—
Saint Mary's	—	—	2	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—
Cecil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Kent	3	—	—	—	11	—	—	—	—	—	—	—	—	—	—	1	—	—
Queen Anne's	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	1
Caroline	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	1	—	1
Talbot	—	—	—	3	3	—	—	—	—	—	—	—	—	—	—	—	m-1	2
Dorchester	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	2	—	1
Wicomico	1	—	1	—	8	1	4	—	—	—	4	—	—	3	—	9	—	6
Worcester	1	—	—	—	7	—	—	—	—	—	—	—	—	1	—	—	—	—
Somerset	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Total, Counties	100	0	232	4	492	1	27	0	0	0	53	0	4	54	1	29		47
Baltimore City	151	0	328	3	363	0	24	0	0	0	28	0	5	82	16	484	m-3 Q-1	21
State																		
Mar. 28–Apr. 24, 1958	251	0	560	7	855	1	51	0	0	0	81	0	9	136	17	513		68
Same period 1957	373	0	54	22	161	3	348	0	0	0	192	0	12	108	16	495		55
5-year median	559	1	126	31	700	4	358	1		0	230	1	23	177	18	480		75
Cumulative totals																		
State																		
Year 1958 to date	914	2	991	36	4740	10	184	0	0	0	333	1	28	542	79	2043		451
Same period 1957	1408	1	118	60	363	11	1203	0	0	0	525	1	71	567	79	2150		271
5-year median	2128	4	300	87	2763	23	1180	3		0	952	5	112	661	80	2170		343

e = encephalitis. m = meningitis, other than meningococcal.
Q = Q fever. t = tetanus.

Blue Cross - Blue Shield

MARYLAND MEDICAL SERVICE, INC.

President's Report*

HENRY F. ULLRICH, M.D.

It is my pleasant duty to report to you on another year of progress by Maryland Medical Service, Inc. Nineteen hundred and fifty-seven, the seventh year of Blue Shield operations in Maryland, has been a noteworthy year, one in which we take just pride.

Again this year Blue Shield increased its membership substantially. A net gain of 80,066 new subscribers to the Standard program was achieved, bringing the year-end membership total to 353,869. Adding the subscribers covered under the special Bethlehem Steel plan brings the total Blue Shield membership at the end of 1957 to 482,389, an increase of 23.6 per cent during the year. This amounts to 47.5 per cent of the total Blue Cross membership.

This significant increase in membership resulted from the enrollment of new Blue Cross and Blue Shield groups, the addition of Blue Shield coverage to many groups which formerly carried only Blue Cross, and a modest but steady increase in non-group enrollment. It is obvious that Blue Shield is gaining greater public acceptance, both as a result of the Plan's direct enrollment efforts and of its public relations and educational program.

With the growth in membership there was a corresponding financial growth. Our total income for 1957 was $5,799,740. Of this amount, $5,034,775, or 86.8 per cent, was paid out in benefits for subscribers; operating expenses accounted for 8.5 per cent of income, leaving 4.7 per cent for addition to reserves. By comparison, we paid out $3,412,228 in benefits in 1956.

Almost 55,000 subscribers under our standard Blue Shield program received benefits during 1957, an increase of 52 per cent over the previous year. For these subscribers we paid 76,460 separate medical, surgical and other services, an average of 1,470 per week. Some 65 per cent of these were surgical services, either in or out of the hospital, 22 per cent were medical admissions and the balance of 13 per cent were obstetrical cases. Ancillary services of anesthesia, consultation, radiation therapy, and emergency X-ray were provided to 39 per cent of those subscribers who received Blue Shield benefits.

On December 1, 1957, the new higher benefit Plan B became a reality. It makes available a second Blue Shield Plan, with a higher benefit schedule and higher income limits for service benefits, to those groups that desire broader protection than that formerly provided. Thus Maryland Blue Shield, like many of the larger Blue Shield Plans in other states, has developed additional flexibility of coverage to meet an increasing public demand for protection against a larger portion of its medical expense.

Your Corporation has completed its first full year of operation as fiscal agent for the "Medicare" program in Maryland. As I mentioned in my report at this time last year, Blue Shield simply acts as an agent, at the request of the Medical and Chirurgical Faculty, in the administration of this program. There is no element of insurance in "Medicare." The Plan simply receives and pays claims and is reimbursed by the Government for all payments, plus administration expenses. The Medicare Advisory Committee, appointed by the Faculty, has worked long and hard with Plan personnel, both in adjudicating problem cases and in a purely advisory capacity. It is due great credit for its efforts. During the past year, 4,214 "Medicare" claims were processed for professional services by Maryland physicians to the wives and children of active duty personnel. Obstetrical cases comprised the heaviest part of this total, (46 per cent). Surgical cases accounted for 28 per cent, and medical admissions, 26 per cent. Ancillary services were provided to nearly 20 per cent of those who received care. All in all, $342,289 was paid out for professional services under the "Medicare" program to the doctors of Maryland.

Our Maryland physicians have continued their loyal support of Blue Shield. I feel that our doctors are becoming more and more cognizant of the purpose and aims of the Blue Shield Plan and are steadily acquiring a more thorough understanding of its administrative procedures. We have increased

our efforts in the realm of physician relations. That portion of our staff concerned with this phase of the operation is small but active, and more and more personal visits are being made to doctors' offices. The program of meetings with physicians' assistants or secretaries has been expanded with gratifying results, both in the counties and in the city.

A further and significant increase in the number of participating physicians was realized in the year just past. By December 31st the figure had reached 2,345, as compared to 2,230 a year ago. During the year, 94 per cent of our payments were made to participating physicians in Maryland, and most of the remainder was paid to out-of-state physicians, the majority of whom were Blue Shield participants in their own States.

My sincere thanks are extended to the members of the Board of Trustees and to the members of our Medical Relations and Reference and Appeals Committees, all of whom have given unstintingly of their time and experience. We have also called upon many other physicians during the year, particularly when we were developing Blue Shield Plan B, and during the early months of the Medicare program. They, too, are due special thanks for their help.

With the continued support and assistance of all the physicians, I am sure that your Maryland Blue Shield Plan will progress even further in 1958.

* Given at the Eighth Annual Meeting of Maryland Medical Service, Inc., February 26, 1958, shortly before Dr. Ullrich's death.

SOCIAL SECURITY FOOTNOTES

A.M.A. Department of Public Relations

To support socialistic practices in regard to retirement funds requires that, for the sake of consistency, socialized medicine also be supported. If one believes that the federal government should tax everyone to provide an income for each upon retirement or disability, one must also believe that the same government could, with equal propriety, tax everyone to provide medical care for all!

Woman's Auxiliary Medical and Chirurgical Faculty

MRS. HOMER ULRIC TODD, SR., *Auxiliary Editor*

MEDICAL SCHOOLS AND THE NATION'S FUTURE

The National Fund for Medical Education was established in 1949 by President Eisenhower when he was the head of Columbia University. It is a non-profit, voluntary corporation founded for the benefit of the nation's medical schools. It was set up at the suggestion of the American Medical Association, Association of American Medical Colleges and the National Association of Manufacturers to help meet the crisis in medical education.

Grants totaling over three million dollars were awarded by the National Fund for Medical Education last year to the nation's eighty-two medical schools. This was the largest award in the Fund's history and brings to over twelve million dollars the total distributed since 1951 when the first grants were made.

The grants were made possible by the record number of contributions to the Fund by business corporations and individuals plus a generous "Matching" grant by the Ford Foundation.

Aims of the Fund

Its purpose is to mobilize private financial support for the country's medical schools and to promote the following broad objectives.

1. Strengthen the nation's ability to survive by training a sufficient corps of skilled men and women to care for the people's health and medical needs.
2. Interpret the needs of medical education to the American public.
3. Encourage the development and advancement of constantly improving standards of medical education.
4. Preserve academic freedom for medical education.

Why Not Let the Federal Government Subsidize Medical Education?

To rely on Federal subsidies would be to invite government domination. It might come gradually, but nonetheless surely. The supervision of public monies required by law would necessarily limit teaching and research programs.

Academic freedom is absolutely essential to the full and free development of the medical sciences. Any curtailment of that freedom would hamper, rather than encourage, the spirit of restless inquiry out of which scientific progress grows.

If it becomes necessary for the schools to accept subsidies in the future, it is important that they be balanced by substantial private funds. It is even more important that a broad representative agency like the Fund, representing medicine, industry and the public be the link between medical education and private support.

The Woman's Auxiliary to the Medical and Chirurgical Faculty of the State of Maryland and its components have contributed to the Fund as follows:

1952–1953	$250.00
1953–1954	535.00
1954–1955	235.00
1955–1956	382.01
1956–1957	876.60

HAWAII AFTER THE A.M.A. MEETING IN SAN FRANCISCO

The members of the Woman's Auxiliary will be very much interested to know that the Hawaii Medical Association's Summer Medical Conference is to be held on July 1st, 2nd and 3rd, in Honolulu.

The Hawaii Medical Society, as you may know, is a component of the American Medical Association and its president, Dr. Yee, has especially invited Mainland doctors (and their wives, *of course*) to attend the Conference.

For anyone who is planning to go to the A.M.A. meeting in San Francisco, which ends on June 27th, the time element really provides a wonderful opportunity to attend both conferences and combine business with pleasure.

In Hawaii the program includes breakfast panels and a special afternoon clinic at a local hospital. Dr. Frederick C. Robbins, of Cleveland, and Dr. Ernest Jawetz, of San Francisco, and other equally outstanding speakers will present papers. (All this, of course, will be of more interest to Auxiliary husbands than wives.) However, there will be an ample number of social functions.

Mr. L. K. Travel, % Medical Tours, P.O. Box 3433, Chicago 54, Illinois is in charge of reservations.

WHAT DID I DO?

MRS. IRVING J. TAYLOR*

How often have we asked ourselves these same four words in reference to any number of queries? "What did I do to make Sally rush into her room in bitter tears?" "What did I do to make Jim so angry?" And, just as frequently—"I wonder what's wrong with Jim's parents, he is so wild?", etc., etc.

This year the Baltimore City Auxiliary enlisted the cooperation of the Dramatic Reading Group (a fine group of Baltimore ladies with professional training). They volunteered to do the psychiatric play "What Did I Do?" This is one of the plays sponsored by the National Association of Mental Health, Inc.

It deals with an overly conscientious mother who blames herself when she discovers that her preadolescent daughter has participated in a group escapade. With the help of a trusted school teacher relative, she realizes that sometimes a parent's best intentions may cause mistakes, and that outside influences also play a part in a child's development.

We hope to get across to our audiences that we are all only human and vulnerable to error and that it is most important to reflect on mistakes honestly and try to correct them intelligently.

If all goes well, the play will have been presented to the Baltimore City group on March 5th, with the Baltimore County Auxiliary in attendance; to the Montgomery Auxiliary on March 18th, and to the Prince George's County Auxiliary on March 25th.

The performances are to be followed by a discussion by Dr. Irving J. Taylor, a psychiatrist, who endeavors to interpret the play and also answer the many thought provoking questions such a vehicle brings to mind.

This is a means of answering my personal question 'What did I do' for Mental Health in the Auxiliary this year? I hope to encourage many of our members to try to understand and gain some insight for themselves, or perhaps for their friends. This, to my way of thinking, could be a type of "preventive mental hygiene."

'What did *WE* do?'—as a group the county and Mental Health chairmen have been occupied with their varied projects.

Mrs. Ross Cameron, of Washington County, was able to interest her Auxiliary in The School of Special Education (formerly called the "School for Mentally Retarded Children"). This group is going to donate childrens' books and magazines, toothpaste, toothbrushes, combs and sundry items which will greatly help the children.

Mrs. Peter Santucci, of Montgomery County, is very hopeful of getting her Auxiliary to sponsor the idea of accepting patients on the home care program. This would certainly be a direct way of helping in the mental health program.

Mrs. George Ingalls, of Baltimore City, learned of the dire need of good street clothing for State Hospital patients who are ready to be paroled. The City Auxiliary was enthusiastic about undertaking to fulfill this need and, I am happy to be able to say, our entire group of Auxiliaries has decided to cooperate.

This is 'What we have done and are doing' in Mental Health. I am sure that all of the chairmen would vastly appreciate it if each one reading this would ask 'What did *I* do?' Have you contributed that nice dress you no longer wear, or your husband's shoes that have been in the closet, unworn for years? If not, please bring to your next Auxiliary meeting (or to the "Med-Chi" building at any time) any good, clean day clothing for men and women. You will gain valuable closet space, and also help rehabilitate someone after hospitalization.

Also, please do all you can to aid in any way possible your own local Mental Health groups. Spread the word to your friends—after all, this *is* part of our job as members of a medical auxiliary.

* State Mental Health Chairman.

COMING MEETINGS

ORTHOPAEDIC SECTION, B.C.M.S.

Monday, May 26, 1958 Time: To be Announced Children's Hospital School

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SEMI-ANNUAL MEETING—MEDICAL AND CHIRURGICAL FACULTY

Friday, September 12, 1958 Commander Hotel—Headquarters
Ocean City, Maryland

UNIVERSITY OF MARYLAND MEDICAL ALUMNI DAY

Thursday, June 5, 1958

Alumni and friends of the University of Maryland School of Medicine are cordially invited to attend the scientific lectures to be given in Chemical Hall beginning at 10:00 a.m.

The speakers are: Dr. Thomas B. Turner, Dean of the School of Medicine, Johns Hopkins University and Dr. Robert W. Buxton, Professor of Surgery, University of Maryland School of Medicine.

(Coffee and buns will be served from 9:00 to 10:00 a.m.)